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UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT

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F/FB-111 AVIONICS TEST STATION AND
COMPONENT CAREER LADDER

AFSC 451X6

AFPT 90-451-850

FEBRUARY 1991

OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT SQUADRON
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78150-5000

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AFHRL/MODS	2	1m	1m	1m	1m	
AFHRL/ID	1	1m	1m/1h	1m/1h	1m/1h	
AFMPC/DPMRPQ1	2					
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HQ AFISC/DAP	2					
HQ ATC/TTOA	2		1	1	1	
HQ SAC/DPAT	3		3	3	3	
HQ SAC/TTA	1		1	1	1	
HQ TAC/DPATJ	3		3	3	3	
HQ TAC/TTA	1		1	1	1	
HQ USAF/LEYM	1		1	1	1	
HQ USAF/DPPE	1					
HQ USAFE/DPAT	3		3	3	3	
HQ USAFE/TTA	1		1	1	1	
NODAC	1					
3400 TCHTW/TTGX (LOWRY AFB CO)	4	1	4	4	4	3
3400 TCHTW/TTS (LOWRY AFB CO)	1		1	1	1	
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USAFOMS/OMYXL	10	2m	5	5	5	10
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PREFACE

This report presents the results of an Air Force Occupational Survey of the F/FB-111 Avionics Test Station and Components (AFSC 451X6A/B) career ladder. Authority for conducting occupational surveys is contained in AFR 35-2. Computer products used in this report are available for use by operations and training officials.

The survey instrument was developed by Chief Master Sergeant Anthony J. O'Flaherty, Master Sergeant Corrie J. Wharton provided computer programming support, and Ms Tamme Lambert provided administrative support. Dr David E. Williams analyzed the data, and Mr William Cosgrove wrote the final report. This report has been reviewed and approved for release by Lieutenant Colonel Charles D. Gorman, Chief, Airman Analysis Section, Occupational Analysis Branch, USAF Occupational Measurement Squadron.

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies may be requested from the Occupational Measurement Squadron, Attention: Chief, Occupational Analysis Branch (OMY), Randolph AFB, Texas 78150-5000.

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SUMMARY OF RESULTS

1. Survey Coverage: Survey results are based on responses from 804 F/FB-111 Avionics Test Station and Components personnel. They represent 68 percent of the total assigned AFSC 451X6 population and include representative numbers of personnel for both A and B shreds at the 3- and 5-skill levels and sufficient personnel at the common 7-skill level.

2. Career Ladder Structure: AFSC 451X6 personnel are working in two groups (A- and B-shreds), with each group performing functions related to their respective shreds. Nine clusters and three independent job types were identified in the career ladder structure analysis. Three jobs are performed by personnel with both shreds, five jobs are performed by predominately A-shred personnel, and four are predominately B-shred jobs.

3. Career Ladder Progression: The AFSC 451X6 career ladder shows a typical career progression pattern. At the 3- and 5-skill levels, the job is primarily technical, but based on the shred. At the 7-skill level, supervisory duties dominate; however, some technical duties, which include both A- and B-shred functions, are also performed.

4. AFR 39-1 Specialty Descriptions: A comparison of survey data to AFR 39-1 indicates the AFR 39-1 Specialty Descriptions provide a comprehensive overview of the respective jobs.

5. Training Analysis: Survey data generally support the AFSC 451X6 Specialty Training Standard (STS) and to a lesser degree, the 45136A and 45136B Plans of Instruction (POIs). These documents need review and updating. There were tasks performed by high percentages of first-job and first-enlistment personnel not having an assigned proficiency code or not being trained at the technical school that should be evaluated for possible inclusion in future revisions of the STS and courses.

6. Job Satisfaction: Overall, job satisfaction indicators for TAFMS groups within the 451X6 current study are generally above 50 percent, but are lower than the comparative sample. Current job satisfaction indicators are also generally lower than similar groups of the previous surveys.

7. Implications: Survey data support the current job structure of AFSC 451X6. The F/FB-111 portions of the previous 326XX AFSCs have integrated well into the new AFSC 451X6 structure; however, there is still a definite division of duties within the B-shred. The division involves two functions--maintaining manual test stations and electronic warfare functions. The two above-mentioned functions were transferred directly from the previous AFSC 326X3A - Integrated Avionics Electronic Warfare Equipment and Component specialty, and AFSC 326X5A - Integrated Avionics Manual Test Station and Component specialty. Training documents are in need of revisions to bring them in line with the needs of the career ladder. Job satisfaction indicators are generally above 50 percent for TAFMS groups, but lower than a comparative sample of similar AFSCs surveyed in 1989 and previous survey groups. Although the RIVET WORK-FORCE program has been implemented, additional time and training are needed to meet all program objectives.

OCCUPATIONAL SURVEY REPORT
F/FB-111 AVIONICS TEST STATION AND COMPONENT CAREER LADDER
(AFSC 451X6A/B)

INTRODUCTION

This is a report of an occupational survey of the F/FB-111 Avionics Test Station and Component (AFSC 451X6) career ladder completed by the USAF Occupational Measurement Squadron in December 1990. This survey was requested by HQ ATC/TTOA and HQ USAF/LEYM to secure current job and task data to be used to identify tasks being performed, to verify utilization and training requirements, and generally update career ladder classification and training documents. A Training Requirements Analysis (TRA) is being done for this AFSC by the Training Development Services Branch, USAFOMS, and should be available to training personnel by March 1991.

Background

The 451X6 career ladder was created in April 1987 under the RIVET WORKFORCE concept. This is the first survey of this career ladder since its creation. Essentially, the 451X6 career ladder was created by combining F/FB-111 functions from the following previous AFSCs:

- 326X3A - Integrated Avionics Electronic Warfare
Equipment and Component Specialty
- 326X4A - Integrated Avionics Computerized Test
Station and Components Specialty
- 326X5A - Integrated Avionics Manual Test
Station and Component Specialty

As outlined in the AFR 39-1 Specialty Descriptions, AFSC 451X6 personnel inspect, troubleshoot, repair, service, modify, install, program, calibrate, and certify avionics systems components, support equipment, test stations, and consoles, and electronic warfare components at the intermediate level. These personnel also use avionics test stations, consoles, support equipment, and specialized precision measurement equipment to perform their duties.

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Entry-level training for the F/FB-111 Avionics Test Station and Component specialist consists of two courses taught at Lowry AFB CO. This AFSC is divided into two shreds (A and B), each having separate entry level courses--Apprentice F/FB-111 Avionics Test Station and Component Specialist - Automatic Equipment Course G3ABR45136A 000 (36.4 weeks), and Apprentice F/FB-111 Avionics Test Station and Component Specialist - Manual and Electronic Warfare (MEW) Equipment Course G3ABR45136B 000 (33.6 weeks). Both A- and B-shred courses cover electronic principles to include circuit and logic diagrams and specific system-related functions. In addition, the beginning phases of the A- and B-shred courses cover aircraft systems theory, operation, and confidence testing of selected line replaceable units, computer principles, safety, security, handtool usage, and technical publications. The second part of both the A- and B-shred courses covers systems equipment which varies according to shred. Both A- and B-shred courses cover--introduction to avionics AGE; maintenance management, inspection, and supply discipline; central processor and controller (CENPAC); data transfer and controller (DATAC); counter/timer; Category I - switching; and Category II - power supplies and analog devices. The remaining portion of the A-shred course covers--AIS-R system overview, software systems, automatic test equipment (common core), computer test station, video test station, radio frequency test station (RF T/S), and electronic warfare test station (EW T/S). The remaining portion of the B-shred course covers--ECM/PATS, countermeasures receiver set (CRS) test station, CRS shop, digital processor test set (DPTS) and programmer, UHF/HF communication systems and test equipment, and TACAN/IFF navigation systems and test equipment.

SURVEY METHODOLOGY

Inventory Development

Data for this survey were collected using USAF Job Inventory AFPT 90-451-850, dated February 1989. The Inventory Developer reviewed pertinent career ladder documents and the previous 326X4A, 326X5A, and 326X3A inventories and OSRs to prepare a tentative task list. This task list was then validated using personal interviews with 52 subject-matter experts from 5 Air Force locations. These locations were chosen to ensure that representative missions performed by DAFSC 451X6 career ladder personnel are adequately covered. Bases visited were:

LOCATIONS AND BASES

3450 Technical Training Group,
Lowry AFB CO

366 Component Repair Squadron,
Mountain Home AFB ID

AIRCRAFT/REASON FOR VISIT

Technical Training Squadron

F-111A, EF-111A

27th Component Repair Squadron,
Cannon AFB NM

F-111D

509th Avionic Maintenance Squadron,
Pease AFB NH

Modernization program
and new test stations

380th Avionic Maintenance Squadron,
Plattsburgh AFB NY

Primarily Avionics
Modernization Program (AMP)

The resulting inventory listed 1,366 tasks grouped under 26 duties. There were also 24 background questions.

Survey Administration

From April through December 1989, Consolidated Base Personnel Offices at operational bases worldwide administered the inventory booklets to all eligible 3-, 5-, and 7-skill-level DAFSC 451X6 personnel. Participants were selected from a computer-generated mailing list provided by the Air Force Armstrong Laboratory, Human Resources Directorate. Those not receiving booklets included those in transition for a permanent change of station (PCS), members retiring at the time of the survey, those hospitalized, and those who had not been in their current job for a minimum of 6 weeks.

All individuals who filled out an inventory booklet first completed an identification and background information section. Next, they went through the booklet and checked each task performed in their current job. After checking all tasks performed, the respondents rated each of these tasks on a 9-point scale reflecting relative time spent on each task compared to all other tasks. Ratings ranged from 1 (indicating a very small amount of time spent) to 9 (indicating a very large amount of time spent). To determine relative time spent for each task checked by the respondent, the sum of a respondent's ratings was assumed to account for 100 percent of his or her time spent on the job. All respondent's ratings were added together, and then each rating was divided by the sum of all responses. Then, this quotient was multiplied by 100 to obtain the relative percent time spent for each task. This procedure provided a basis for comparing tasks not only in terms of percent members performing, but also in terms of relative percent time spent on tasks and groups of tasks.

Survey Sample

All eligible DAFSC 451X6 personnel were mailed survey booklets, and the final sample included responses from 804 of these personnel. Table 1 shows the percentage distribution, by MAJCOM, of assigned personnel in the career ladder as of March 1989. The 804 respondents in the final sample represent 68 percent of the total assigned personnel and 73 percent of the total personnel surveyed. Table 2 shows the survey sample representation across paygrades. From these tables, it can be seen that the final survey is representative (by MAJCOMs and paygrades) of the 451X6 career ladder.

TABLE 1
COMMAND REPRESENTATION OF AFSC 451X6 SURVEY SAMPLE

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
TAC	41	43
USAFE	31	30
SAC	21	21
ATC	7	6

TOTAL PERSONNEL ASSIGNED: 1,176
TOTAL PERSONNEL ELIGIBLE FOR SURVEY: 1,108
TOTAL PERSONNEL IN SAMPLE: 804
PERCENT OF ASSIGNED IN SAMPLE: 68%
PERCENT OF ELIGIBLE IN SAMPLE: 73%

TABLE 2
PAYGRADE REPRESENTATION OF AFSC 451X6 SURVEY SAMPLE

<u>PAYGRADE</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
AIRMAN	14	13
E-4	30	32
E-5	34	37
E-6	15	12
E-7	7	6

Data Processing and Analysis

Once job inventories are returned from the field, the responses to both background and task information are checked for completeness, and the data are then entered into the computer. Specialized computer analysis programs, called Comprehensive Occupational Data Analysis Programs (CODAP), are then applied to the data and various computer products are generated to aid in data analysis.

Computer-generated job descriptions are produced for groups of respondents including DAFSC, Time in Service (TAFMS), Time in career field (TICF), MAJCOMs, Conus/Overseas, as well as specialty job groups. These descriptions include such information as percent members performing each task and the average percent time spent on each task.

Task Factor Administration

In addition to completing a job inventory, selected senior 451X6 personnel were asked to complete a second booklet for either training emphasis (TE) or task difficulty (TD). The TE and TD booklets are processed separately from the job inventories. Rating information is discussed in more detail in the training section of this report.

Task Difficulty (TD): Individuals completing a TD booklet were asked to rate all inventory tasks on a 9-point scale (from extremely low to extremely high) as to the relative difficulty of those tasks. Difficulty is defined as the length of time required by an average incumbent to learn to do a particular task. Task difficulty data were independently collected from 65 senior level AFSC 451X6 personnel stationed worldwide. Interrater reliability was acceptable, which indicates good agreement among the 65 raters as to which tasks are the most difficult to learn to perform. Ratings are adjusted so that tasks of average difficulty have ratings of 5.00, with a standard deviation of 1.00. The resulting data are essentially a rank ordering of tasks, indicating the relative degree of difficulty for each task in the inventory.

Training Emphasis (TE): Another group of 61 senior technicians was selected to complete a TE booklet. This involved rating the inventory tasks on a 10-point scale from 0 (no training required) to 9 (extremely high training emphasis). Training emphasis is a rating of which tasks, in the opinion of the raters, require structured training for first-term personnel. Structured training is defined as training provided at the resident technical school, field training detachment (FTD), mobile training teams, formal OJT, or any other organized training methods. The interrater reliability for these 61 raters indicated unacceptably low agreement among raters as to which tasks require some form of structured training and the relative amount of emphasis that should be placed on those tasks. Because of this unacceptable agreement among raters, TE data are not available for this career ladder.

SPECIALTY JOBS (Career Ladder Structure)

An important part of each occupational survey is to examine the overall job structure that exists within a career ladder, as well as how these jobs relate to each other. This is accomplished by examining what job incumbents indicate they are actually doing, rather than what the official career field documents dictate they should be doing. The automated job clustering program inherent in the CODAP system plays an integral part in the analysis of the actual job structure for a career ladder. Job groups are formed based on similarity of tasks performed and relative time spent performing those tasks. Starting with career ladder structure data, a thorough examination of the accuracy and completeness of career ladder documents (AFR 39-1 Specialty Descriptions and Specialty Training Standards) is conducted, and an understanding of current utilization patterns is formulated.

The occupational analysis process consists of determining the functional job structure of career ladder personnel in terms of clusters, job types, and independent job types. A job type is a group of individuals who perform many of the same tasks and also spend similar amounts of time performing them. When there is a substantial degree of similarity between different job types, they are grouped together and labeled as clusters. Finally, there are often cases of specialized job types that are too dissimilar to be grouped into any cluster. These unique groups are called independent job types.

Overview of Specialty Jobs

The job structure of the F/FB-111 Avionic Test Station and Components career ladder was determined by a job type analysis of survey data from 804 respondents. This analysis identified nine clusters and three independent job types. These job groups are illustrated in Figure 1 and listed below. The stage (STG) number shown beside each title is a reference to computer-printed information. The number of personnel in each job group (N) is also shown.

- I. SUPPORT PERSONNEL CLUSTER (STG013, N=14)
- II. TECHNICAL TRAINING INSTRUCTOR CLUSTER (STG073, N=26)
- III. PRODUCTION CONTROLLER IJT (STG140, N=5)
- IV. SUPERVISOR CLUSTER (STG028, N=118)
- V. ELECTRONIC COUNTERMEASURES MAINTENANCE TECHNICIAN CLUSTER
(STG042, N=31)
- VI. MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN CLUSTER
(STG047, N=168)
- VII. AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN CLUSTER
(STG085, N=36)

F/FB 111 AVIONICS TEST STATION AND COMPONENTS (AFSC 451X6A/B)

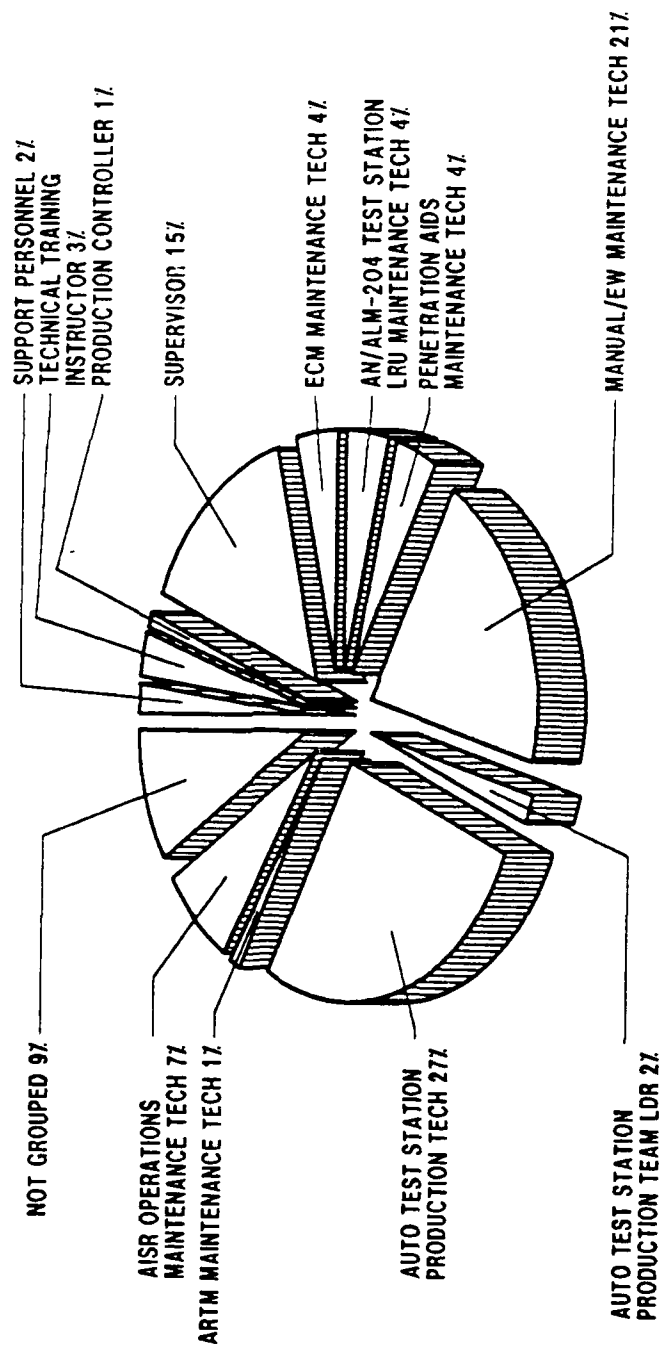


FIGURE 1

- VIII. PENETRATION AIDS MAINTENANCE TECHNICIAN IJT (STG161, N=32)
- IX. AUTOMATIC TEST STATION PRODUCTION TEAM LEADER CLUSTER (STG087, N=13)
- X. AUTOMATIC TEST STATION PRODUCTION TECHNICIAN CLUSTER (STG093, N=221)
- XI. AVIONIC RECEIVER-TRANSMITTER-MODULATOR MAINTENANCE TECHNICIAN IJT (STG132, N=8)
- XII. AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN CLUSTER (STG89, N=54)

The respondents forming these groups account for 91 percent of the survey sample. The remaining 9 percent, though reporting similar job titles, are personnel whose responsibilities differ enough that they do not group with any of the identified specialty jobs.

Group Descriptions

The following paragraphs contain brief descriptions of the clusters, variations, and independent job types identified within the AFSC 451X6 career ladder. Relative percent time spent on duties for each group is presented in Table 3, while Table 4 reflects selected background data for each group. The discussion presented is limited to a brief description of the respondents who comprise the jobs and examples of tasks performed. Extensive lists of representative tasks performed by each specialty job discussed below are provided in Appendix A.

I. SUPPORT PERSONNEL CLUSTER (STG013, N=14). This small cluster of 14 members is support personnel primarily involved with quality assurance and technical order monitoring. They work in the avionic test station and component shop. Their main functions are to inspect quality of materials and completed repair service and to monitor, maintain, and update technical orders. These personnel spend a majority of their time (92 percent) on tasks related to four broad categories--performing general administrative and supply tasks, evaluating and inspecting, organizing and planning, and directing and implementing. Twenty-nine percent of these personnel are assigned overseas. They perform an average of 16 tasks. Common tasks include:

- Direct maintenance of Technical Order (TO) files
- Evaluate personnel for compliance with performance standards or TOs
- Evaluate safety or security programs
- Initiate or review Technical Order (TO) system forms, such as AFTO Forms 22, 27, 32, 110, 110A, 110B, and 131

TABLE 3

AVERAGE TIME SPENT ON DUTIES BY SPECIALTY JOB GROUPS
(PERCENT MEMBERS PERFORMING)

DUTIES	SUPPORT PERSONNEL (N=14)	TECHNICAL TRAINING INSTRUCTOR (N=26)	PRODUCTION CONTROLLER (N=5)	SUPERVISOR (N=118)
A. ORGANIZING AND PLANNING	12	1	6	17
B. DIRECTING AND IMPLEMENTING	11	5	2	16
C. EVALUATING AND INSPECTING	29	2	2	15
D. TRAINING	3	63	1	16
E. PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	40	8	79	18
F. PERFORMING GENERAL AVIONICS MAINTENANCE	5	7	11	10
G. MAINTAINING COMMON AUTOMATIC TEST EQUIPMENT (CATE)	0	1	0	1
H. MAINTAINING AVIONIC INTERMEDIATE SHOP/REPLACEMENT (AIS/R) TEST STATIONS	0	10	0	1
I. MAINTAINING AUTOMATIC TEST SETS AND MOCKUPS	0	0	0	*
J. MAINTAINING CENTRAL PROCESSORS AND CONTROLLERS (CENPAC), MAGNETIC TAPE UNITS (MTU), AND TAPE READERS	0	*	0	*
K. MAINTAINING ATTITUDE AND RATE (6805) TEST STATIONS	0	0	0	*
L. MAINTAINING INDICATORS AND MODULES (6846), INDICATORS AND SENSORS (6876), AND ELECTRONIC SYSTEMS (6886) TEST STATIONS	0	*	0	*
M. MAINTAINING COMPUTER (6803), NAVIGATION/FLIGHT CONTROL (6873), AND CONVERTER/FLIGHT CONTROL (6883) TEST STATIONS	0	*	0	*
N. MAINTAINING RADAR ALTIMETER (6836), VIDEO (6815, 6875, 6885) AND APQ-130 ATTACK RADAR SUBSYSTEM TEST STATIONS	0	0	0	*
O. MAINTAINING DOPPLER RADAR (6868 AND 6888) TEST STATIONS	0	0	0	*
P. MAINTAINING FLUID PRESSURIZATION (65AN), AND RECEIVER-TRANSMITTER-MODULATOR (6802, 6872, AND 6882) TEST STATIONS	0	0	0	*

* Equal to less than .5 percent

NOTE: Column totals may not equal 100 percent due to rounding

TABLE 3 (CONTINUED)

AVERAGE TIME SPENT ON DUTIES BY SPECIALTY JOB GROUPS
(PERCENT MEMBERS PERFORMING)

DUTIES	SUPPORT PERSONNEL (N=14)	TECHNICAL TRAINING INSTRUCTOR (N=26)	PRODUCTION CONTROLLER (N=5)	SUPERVISOR (N=118)
Q. MAINTAINING SERVOS AND INDICATORS (6825 AND 6895) TEST STATIONS	0	0	0	*
R. MAINTAINING DIGITAL NAVIGATION AND WEAPONS DELIVERY (6863) TEST STATIONS	0	0	0	*
S. MAINTAINING AUTOMATIC LINE REPLACEABLE UNITS (LRU)	0	*	0	1
T. MAINTAINING DISPLAY TEST STATIONS (6887) AND INDICATOR DISPLAY SYSTEM MOCKUPS	0	0	0	0
U. MAINTAINING MANUAL AND ELECTRONIC WARFARE (EW) TEST SETS AND MOCKUPS	0	1	0	1
V. MAINTAINING MANUAL TEST STATIONS AND LRUs	0	0	0	*
W. MAINTAINING FB-111 SATELLITE COMMUNICATIONS (SATCOM) LRUs	0	0	0	0
X. MAINTAINING MANUAL TEST STATIONS AND LRUs	0	*	0	*
Y. MAINTAINING ELECTRONIC COUNTERMEASURES (ECM) PODS AND ASSIGNED TEST EQUIPMENT	0	0	0	3
Z. MAINTAINING AN/ALM-204 TEST STATIONS AND ASSIGNED LRUs	0	0	0	0

* Equal to less than .5 percent

NOTE: Column totals may not equal 100 percent due to rounding

TABLE 3 (CONTINUED)

AVERAGE TIME SPENT ON DUTIES BY SPECIALTY JOB GROUPS
(PERCENT MEMBERS PERFORMING)

DUTIES	ELECTRONIC COUNTER- MEASURES MAINTENANCE TECHNICIAN (N=31)	MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN (N=168)	AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN (N=36)	PENETRATION AIDS MAINTENANCE TECHNICIAN (N=32)
A. ORGANIZING AND PLANNING	*	2	2	1
B. DIRECTING AND IMPLEMENTING	1	2	2	2
C. EVALUATING AND INSPECTING	1	2	2	1
D. TRAINING	1	3	2	3
E. PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	17	10	15	10
F. PERFORMING GENERAL AVIONICS MAINTENANCE	40	28	46	27
G. MAINTAINING COMMON AUTOMATIC TEST EQUIPMENT (CATE)	*	1	2	16
H. MAINTAINING AVIONIC INTERMEDIATE SHOP/REPLACEMENT (AIS/R) TEST STATIONS	*	*	0	1
I. MAINTAINING AUTOMATIC TEST SETS AND MOCKUPS	0	*	1	0
J. MAINTAINING CENTRAL PROCESSORS AND CONTROLLERS (CENPAC), MAGNETIC TAPE UNITS (MTU), AND TAPE READERS	0	*	0	*
K. MAINTAINING ATTITUDE AND RATE (6805) TEST STATIONS	0	*	0	*
L. MAINTAINING INDICATORS AND MODULES (6846), INDICATORS AND SENSORS (6876), AND ELECTRONIC SYSTEMS (6886) TEST STATIONS	0	0	0	0
M. MAINTAINING COMPUTER (6803), NAVIGATION/FLIGHT CONTROL (6873), AND CONVERTER/FLIGHT CONTROL (6883) TEST STATIONS	0	*	0	0
N. MAINTAINING RADAR ALTIMETER (6836), VIDEO (6815, 6875, 6885) AND APQ-130 ATTACK RADAR SUBSYSTEM TEST STATIONS	0	*	0	0

* Equal to less than .5 percent

NOTE: Column totals may not equal 100 percent due to rounding

TABLE 3 (CONTINUED)

AVERAGE TIME SPENT ON DUTIES BY SPECIALTY JOB GROUPS
(PERCENT MEMBERS PERFORMING)

DUTIES	ELECTRONIC COUNTER- MEASURES MAINTENANCE TECHNICIAN (N=31)	MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN (N=168)	AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN (N=36)	PENETRATION AIDS MAINTENANCE TECHNICIAN (N=32)
O. MAINTAINING DOPPLER RADAR (6868 AND 6888) TEST STATIONS	0	0	0	0
P. MAINTAINING FLUID PRESSURIZATION (65AN), AND RECEIVER-TRANSMITTER-MODULATOR (6802, 6872, AND 6882) TEST STATIONS	0	0	0	0
Q. MAINTAINING SERVOS AND INDICATORS (6825 AND 6895) TEST STATIONS	0	0	0	0
R. MAINTAINING DIGITAL NAVIGATION AND WEAPONS DELIVERY (6863) TEST STATIONS	0	0	0	0
S. MAINTAINING AUTOMATIC LINE REPLACEABLE UNITS (LRU)	0	*	1	0
T. MAINTAINING DISPLAY TEST STATIONS (6887) AND INDICATOR DISPLAY SYSTEM MOCKUPS	0	0	0	0
U. MAINTAINING MANUAL AND ELECTRONIC WARFARE (EW) TEST SETS AND MOCKUPS	3	27	1	5
V. MAINTAINING MANUAL TEST STATIONS AND LRUs	0	3	*	3
W. MAINTAINING FB-111 SATELLITE COMMUNICATIONS (SATCOM) LRUs	0	3	0	0
X. MAINTAINING MANUAL TEST STATIONS AND LRUs	1	18	0	30
Y. MAINTAINING ELECTRONIC COUNTERMEASURES (ECM) PODS AND ASSIGNED TEST EQUIPMENT	36	*	0	1
Z. MAINTAINING AN/ALM-204 TEST STATIONS AND ASSIGNED LRUs	0	*	26	*

* Equal to less than .5 percent

NOTE: Column totals may not equal 100 percent due to rounding

TABLE 3 (CONTINUED)

AVERAGE TIME SPENT ON DUTIES BY SPECIALTY JOB GROUPS
(PERCENT MEMBERS PERFORMING)

DUTIES	AUTOMATIC TEST STATION PRODUCTION TEAM LEADER (N=13)		AUTOMATIC TEST STATION PRODUCTION TECHNICIAN (N=221)		AVIONIC RECEIVER- TRANSMITTER- MODULATOR MAINTENANCE TECHNICIAN (N=8)		AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN (N=54)	
A. ORGANIZING AND PLANNING	4		1		1		1	
B. DIRECTING AND IMPLEMENTING	4		2		2		2	
C. EVALUATING AND INSPECTING	2		1		2		2	
D. TRAINING	3		3		2		2	
E. PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	24		11		14		10	
F. PERFORMING GENERAL AVIONICS MAINTENANCE	33		31		29		25	
G. MAINTAINING COMMON AUTOMATIC TEST EQUIPMENT (CATE)	2		15		5		2	
H. MAINTAINING AVIONIC INTERMEDIATE SHOP/ REPLACEMENT (AIS/R) TEST STATIONS	1		1		0		30	
I. MAINTAINING AUTOMATIC TEST SETS AND MOCKUPS	1		2		1		*	
J. MAINTAINING CENTRAL PROCESSORS AND CONTROLLERS (CENPAC), MAGNETIC TAPE UNITS (MTU), AND TAPE READERS	0		2		3		*	
K. MAINTAINING ATTITUDE AND RATE (6805) TEST STATIONS	5		*		0		*	
L. MAINTAINING INDICATORS AND MODULES (6846), INDICATORS AND SENSORS (6876), AND ELECTRONIC SYSTEMS (6886) TEST STATIONS	0		2		0		*	
M. MAINTAINING COMPUTER (6803), NAVIGATION/ FLIGHT CONTROL (6873), AND CONVERTER/FLIGHT CONTROL (6883) TEST STATIONS	1		1		0		*	
N. MAINTAINING RADAR ALTIMETER (6836), VIDEO (6815, 6875, 6885) AND APQ-130 ATTACK RADAR SUBSYSTEM TEST STATIONS	1		2		*		*	

* Equal to less than .5 percent

NOTE: Column totals may not equal 100 percent due to rounding

TABLE 3 (CONTINUED)

AVERAGE TIME SPENT ON DUTIES BY SPECIALTY JOB GROUPS
(PERCENT MEMBERS PERFORMING)

DUTIES	AUTOMATIC TEST STATION PRODUCTION TEAM LEADER (N=13)	AUTOMATIC TEST STATION PRODUCTION TECHNICIAN (N=221)	AVIONIC RECEIVER- TRANSMITTER- MODULATOR MAINTENANCE TECHNICIAN (N=8)	AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN (N=54)
O. MAINTAINING DOPPLER RADAR (6868 AND 6888) TEST STATIONS	0	*	0	*
P. MAINTAINING FLUID PRESSURIZATION (65AN), AND RECEIVER-TRANSMITTER-MODULATOR (6802, 6872, AND 6882) TEST STATIONS	0	1	3	*
Q. MAINTAINING SERVOS AND INDICATORS (6825 AND 6895) TEST STATIONS	0	*	0	*
R. MAINTAINING DIGITAL NAVIGATION AND WEAPONS DELIVERY (6863) TEST STATIONS	0	1	0	0
S. MAINTAINING AUTOMATIC LINE REPLACEABLE UNITS (LRU)	18	23	36	24
T. MAINTAINING DISPLAY TEST STATIONS (6895) AND INDICATOR DISPLAY SYSTEM MOCKUPS	1	*	0	*
U. MAINTAINING MANUAL AND ELECTRONIC WARFARE (EW) TEST SETS AND MOCKUPS	0	*	0	1
V. MAINTAINING MANUAL TEST STATIONS AND LRUs	0	*	0	*
W. MAINTAINING FB-111 SATELLITE COMMUNICATIONS (SATCOM) LRUs	0	0	0	0
X. MAINTAINING MANUAL TEST STATIONS AND LRUs	0	0	0	1
Y. MAINTAINING ELECTRONIC COUNTERMEASURES (ECM) PODS AND ASSIGNED TEST EQUIPMENT	0	0	0	0
Z. MAINTAINING AN/ALM-204 TEST STATIONS AND ASSIGNED LRUs	0	0	0	0

* Equal to less than .5 percent

NOTE: Column totals may not equal 100 percent due to rounding

TABLE 4

SELECTED BACKGROUND DATA FOR 451X6 CAREER LADDER JOBS

	SUPPORT PERSONNEL	TECHNICAL TRAINING INSTRUCTOR	PRODUCTION CONTROLLER	SUPERVISOR
NUMBER IN GROUP	14	26	5	118
PERCENT OF TOTAL SAMPLE	2%	3%	1%	15%
PERCENT IN CONUS	71%	100%	40%	66%

DAFSC DISTRIBUTION (PERCENT RESPONDING):				
45136A	0%	0%	40%	1%
45156A	21%	54%	20%	9%
45136B	0%	0%	0%	0%
45156B	0%	19%	20%	17%
45176	79%	27%	20%	73%

MAJCOM DISTRIBUTION (PERCENT RESPONDING):				
ATC	0%	100%	0%	9%
SAC	7%	0%	20%	14%
TAC	64%	0%	20%	43%
USAFE	29%	0%	60%	33%

AVERAGE GRADE	E-6	E-5	E-4	E-6
AVERAGE MONTHS IN CAREER FIELD	102	96	59	123
AVERAGE MONTHS IN SERVICE	143	108	66	159
PERCENT FIRST ENLISTMENT	7%	0%	60%	3%
PERCENT SUPERVISING	21%	12%	20%	87%
AVERAGE NUMBER OF TASKS PERFORMED	16	18	10	80

NOTE: Some columns may not add to 100 percent due to rounding

TABLE 4 (CONTINUED)

SELECTED BACKGROUND DATA FOR 451X6 CAREER LADDER JOBS

	ELECTRONIC COUNTER- MEASURES MAINTENANCE TECHNICIAN	MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN	AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN	PENETRATION AIDS MAINTENANCE TECHNICIAN
NUMBER IN GROUP	31	168	36	32
PERCENT OF TOTAL SAMPLE	4%	21%	4%	4%
PERCENT IN CONUS	29%	71%	81%	75%

DAFSC DISTRIBUTION (PERCENT RESPONDING):				
45136A	0%	0%	0%	0%
45156A	6%	2%	6%	0%
45136B	35%	13%	6%	9%
45156B	58%	65%	81%	59%
45176	0%	20%	7%	31%

MAJCOM DISTRIBUTION (PERCENT RESPONDING):				
ATC	0%	1%	0%	0%
SAC	0%	40%	8%	0%
TAC	29%	32%	62%	75%
USAFE	71%	27%	31%	25%

AVERAGE GRADE	E-4	E-4	E-4	E-4
AVERAGE MONTHS IN CAREER FIELD	43	63	59	62
AVERAGE MONTHS IN SERVICE	47	76	75	78
PERCENT FIRST ENLISTMENT	35%	28%	19%	34%
PERCENT SUPERVISING	16%	45%	33%	47%
AVERAGE NUMBER OF TASKS PERFORMED	54	140	80	124

NOTE: Some columns may not add to 100 percent due to rounding

TABLE 4 (CONTINUED)

SELECTED BACKGROUND DATA FOR 451X6 CAREER LADDER JOBS

	AUTOMATIC TEST STATION PRODUCTION TEAM LEADER	AUTOMATIC TEST STATION PRODUCTION TECHNICIAN	AVIONIC RECEIVER- TRANSMITTER- MODULATOR MAINTENANCE TECHNICIAN	AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN
NUMBER IN GROUP	13	221	8	54
PERCENT OF TOTAL SAMPLE	2%	27%	1%	7%
PERCENT IN CONUS	69%	65%	13%	100%

DAFSC DISTRIBUTION (PERCENT RESPONDING)				
45136A	31%	14%	38%	22%
45156A	54%	70%	63%	50%
45136B	0%	0%	0%	0%
45156B	0%	2%	0%	8%
45176	15%	14%	0%	20%

MAJCOM DISTRIBUTION (PERCENT RESPONDING):				
ATC	0%	0%	0%	0%
SAC	0%	7%	0%	89%
TAC	62%	59%	12%	11%
USAFE	31%	33%	88%	0%

AVERAGE GRADE	E-5	E-4	E-4	E-5
AVERAGE MONTHS IN CAREER FIELD	42	51	43	53
AVERAGE MONTHS IN SERVICE	91	72	71	83
PERCENT FIRST ENLISTMENT	30%	28%	38%	18%
PERCENT SUPERVISING	62%	40%	37%	37%
AVERAGE NUMBER OF TASKS PERFORMED	59	122	61	147

NOTE: Some columns may not add to 100 percent due to rounding

Inspect in-shop maintenance actions
Maintain microfiche stock files
Maintain TO publication files

Only 7 percent of these personnel are in their first enlistment. These personnel average 143 months in the military, and 21 percent indicate they supervise at least one subordinate. Within this cluster, two variations were identified--one group was primarily involved with the quality control function, while the other was mainly involved with technical order monitoring.

II. TECHNICAL TRAINING INSTRUCTOR CLUSTER (STG073, N=26). This group of 26 instructors conducts resident course classroom training and are all assigned to Lowry Technical Training Squadron in ATC. Fifty-four percent of these personnel hold DAFSC 45156A, 19 percent hold DAFSC 45156B, and the remaining 27 percent hold DAFSC 45176. They spend 81 percent of their job time on tasks related to three broad duty categories--training, maintaining avionic intermediate shop/replacement (AIS/R) test stations, and performing general administrative and supply tasks. They perform an average of 18 tasks. Common tasks include:

Administer tests
Conduct resident course classroom training
Counsel trainees on training progress
Develop resident course training materials
Evaluate progress of trainees
Score tests
Write test questions

Within this cluster, two variations were identified. One variation of personnel worked primarily as classroom instructors, while the other one was involved with both training and training management functions.

III. PRODUCTION CONTROLLER IJT (STG140, N=5). This small group of specialized personnel perform functions related primarily to due-in-for-maintenance (DIFM) and production control. Forty percent of these airmen hold DAFSC 45136A, 20 percent hold DAFSC 45156A, 20 percent hold DAFSC 45156B, and the remaining 20 percent hold DAFSC 45176. A majority of their time (90 percent) is spent performing tasks related to two categories--performing general administrative and supply tasks, and performing general avionic maintenance. This group of individuals average 66 months in the military, and 60 percent are in their first enlistment. They perform an average of 10 tasks. Common tasks include:

- Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag-Materiel)
- Maintain AF Forms 2005 suspense files
- Maintain transaction rosters, such as D04, D18, D19, D23, M30, and T20
- Pack or unpack LRUs or equipment
- Process due in for maintenance (DIFM) items
- Verify mission capability (MICAP) conditions

IV. SUPERVISOR CLUSTER (STG028, N=118). The 118 members of this cluster represent 15 percent of the survey sample. The majority of these individuals (73 percent) function at the 7-skill level and spend most of their time supervising, counseling, and evaluating subordinates, establishing work methods and priorities, and compiling data for reports. While they spend very little time performing specific maintenance actions, 28 percent of their time is spent performing general test station maintenance, performing administrative supply, and avionics shop tasks. They perform an average of 80 tasks. Common tasks include:

- Counsel personnel on personal or military-related matters
- Determine work priorities
- Inspect personnel for compliance with military standards
- Interpret policies, directives, or procedures for subordinates
- Maintain training records
- Plan or schedule work assignments
- Write APRs

Eighty-seven percent of the individuals in this cluster report supervising subordinates. They average 159 months TAFMS. Sixty-six percent of these personnel are assigned to bases located within the CONUS.

There are five variations within this cluster--F-111A/F-111E Avionic Systems Personnel NCOICs, Training Managers, Shop Supervisors, Automatic/Manual Test Station Supervisors, and F-111F/F-111D/F-111E Avionic Systems Technician/Supervisors.

V. ELECTRONIC COUNTERMEASURES MAINTENANCE TECHNICIAN CLUSTER (STG042, N=31). This group of personnel are primarily involved with maintenance of electronic countermeasures (ECM) equipment and test sets. They are responsible for maintaining the equipment designed to jam enemy radars. The jamming equipment maintained by these technicians includes equipment located within the interior of the F/FB-111 aircraft and ECM pod equipment located on the belly of the aircraft. There are two noted variations within this cluster--Manual ECM Personnel and Semi-Automatic Support Test Equipment Personnel. These personnel have an average of 47 months in the military, and 35 percent are in their first enlistment. Seventy-one percent are assigned to overseas locations. They spend a majority of their job time (93 percent) on tasks

related to three categories--performing general avionic maintenance, maintaining electronic countermeasures (ECM) pods and assigned test equipment, and performing general administrative and supply tasks. They perform an average of 54 tasks. Common tasks include:

- Fabricate or rebuild cables
- Inspect and clean test station blowers and filters
- Perform hy-pot tests of ECM travelling wave tubes
- Remove or replace AN/ALQ-131 ECM pod components
- Remove or replace test station minor hardware, such as
light bulbs or fuses
- Remove or replace high voltage power supplies

VI. MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN CLUSTER (STG047, N=168). This cluster of personnel is primarily responsible for the day-to-day monitoring and maintaining of manual test stations and avionic electronic warfare components. They represent 21 percent of the survey sample, and 29 percent are assigned to overseas locations. Most of their job time (83 percent) is spent performing general avionic maintenance, maintaining manual and electronic warfare (EW) test sets, maintaining manual test stations and LRU, and performing general administrative and supply tasks. They perform an average of 140 tasks. Common tasks include:

- Inspect and clean test station blowers and filters
- Inspect and clean test stations, simulators, mockups,
or line replaceable units (LRU)
- Remove or replace LRU minor hardware
- Remove or replace LRU pins or connectors
- Remove or replace test station minor hardware,
such as light bulbs or fuses
- Solder components, such as relays, resistors, or plugs

Within this cluster, two variations were identified. One group of 69 airmen broke out because they were more involved with the Countermeasures Receiver Set (12A16891) and Digital Processor (185) Test Station. A second group of 61 airmen was more involved with Identification Friend or Foe (IFF) (APX-64) and Ultra High Frequency (UHF) (ARC-164) Mockups.

VII. AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN CLUSTER (STG085, N=36). These personnel are manual test station workers who are mainly involved with the AN/ALM-204 test station LRU, which is a digital test console for the EF-111A aircraft. Most of these airmen are assigned to either Mountain Home Air Force Base or Upper Heyford Air Base. These incumbents spent 87 percent of their job time on tasks related to general avionic maintenance, maintaining AN/ALM-204 test stations and LRUs, and performing general administrative and supply tasks. The incumbents average 75 months in the military. Nineteen percent are in their first enlistment. They perform an average of 80 tasks. Common tasks include:

- Align AN/ALM-204 systron donner generators
- Perform confidence and comprehensive periodic self-tests of AN/ALM test stations
- Perform fault isolation tests of AN/ALM-204 test station self-test failures
- Remove or replace AN/ALM-204 TRUs or SRUs
- Remove or replace LRU minor hardware
- Solder components, such as relays, resistors, or plugs

VIII. PENETRATION AIDS MAINTENANCE TECHNICIAN IJT (STG161, N=32). These personnel perform a unique job involving the penetration aids (Pen Aid) system, which is a system designed to allow the F-111 aircraft to know where their threats are in a hostile environment. A majority (73 percent) of their job time is spent on three duties--maintaining manual test stations and LRUs, performing general avionic maintenance, and maintaining common automatic test equipment (CATE). They perform an average of 124 tasks. Common tasks include:

- Align AN/ALQ-94 low band receivers (LBR)
- Align PEN AIDS test station RF generators
- Isolate malfunctions in PEN AIDS test station buffer/adapters
- Isolate malfunctions in PEN AIDS test station switching units
- Isolate malfunctions in PEN AIDS test station video evaluation units
- Perform operational tests of AN/ALQ-94 LBPA's
- Perform operational tests of AN/ALQ-94 LBR's

IX. AUTOMATIC TEST STATION PRODUCTION TEAM LEADER CLUSTER (STG087, N=13). This small cluster of respondents is responsible for production control on the automatic test stations to include team leader responsibility for the control of incoming and outgoing equipment. These incumbents spend 75 percent of their time on tasks related to general avionic maintenance, general administrative and supply tasks, and maintaining automatic LRUs. They perform an average of 59 tasks. Common tasks include:

- Annotate AFTO Forms 95 (Significant Historical Data)
- Annotate, initiate, or complete AFTO Forms 349 (Maintenance Data Collection Record)
- Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)
- Determine work priorities
- Inspect equipment for current calibration dates
- Remove or replace LRU minor hardware
- Review AFTO Forms 349

Sixty-nine percent of these airmen are assigned within CONUS, with 62 percent indicating they supervise one or more individuals. They average 91 months in the military, with E-5 as the average grade.

X. AUTOMATIC TEST STATION PRODUCTION TECHNICIAN CLUSTER (STG093, N=221). This cluster is the largest of all groups identified, comprising 27 percent of the survey sample. These individuals work on automated or computer systems and are involved with the day-to-day function of the automatic test stations and components. They spend 69 percent of their job time on tasks related to general avionic maintenance, maintaining automatic LRUs, and maintaining common automatic test equipment. They performed an average of 122 tasks. Common tasks include:

- Inspect and clean test station blowers and filters
- Isolate malfunctions in stimulus controllers using maintenance tapes, manual programming, or schematics
- Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics
- Isolate malfunctions in test point controllers using manual programming, maint tapes, or schematics
- Isolate malfunctions in test point relays using manual programming, maintenance tapes, or schematics
- Remove or replace LRU minor hardware

These incumbents average 72 months in the military, and 28 percent are in their first enlistment. This cluster consists of several job variations--F-111F Avionics Systems Personnel, Computer (12416803) Test Station Systems Personnel, F-111D Systems Personnel, Video (12A6815/12A6875/12A6885) Test Station Personnel, Receiver-Transmitter-Modulator Test Station (12A6872) Personnel, Terrain Following Radar Mock-up Personnel, Antenna Repairmen, and Digital Navigation and Weapons Delivers (12A6863) Test Station Personnel.

XI. AVIONIC RECEIVER-TRANSMITTER-MODULATOR MAINTENANCE TECHNICIAN IJT (STG132, N=8). This job incorporates the responsibility for maintaining the receiver-transmitter-modulator (12A6802) system. More specifically, the job involves checking components on attack radar systems. They spend 79 percent of their time on tasks related to maintaining automatic LRUs, general avionic maintenance, and general administrative and supply tasks. They perform an average of 61 tasks. Common tasks include:

- Remove or replace coaxial cable wiring or pins
- Align modulator receiver-transmitters (MRT)
- Isolate malfunctions in MRTs
- Isolate malfunctions in TFR transmitter synchronizers
- Perform operational tests of TFR transmitter-synchronizers
- Perform operational tests of MRTs
- Remove or replace MRT SRUs

Thirteen percent of these personnel are assigned within CONUS. They average 71 months in the military, and 38 percent are in their first enlistment.

XII. AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN CLUSTER (STG89, N=54). This cluster of technicians consists of automatic test station personnel working on EF-111A/FB-111A aircraft. They are primarily responsible for system maintenance on the above-mentioned aircraft test stations and components. This group of technicians has an average of 83 months in the military, with only 18 percent in their first enlistment. Most of their job time is spent maintaining avionic intermediate shop/replacement (AIS/R) test stations, general avionic maintenance and maintaining automatic LRUs. They perform an average of 147 tasks. Common tasks include:

- Isolate malfunctions to AC auxiliary power supplies
- Isolate malfunctions to DC programmable power supplies
- Isolate malfunctions within multifunction units
- Isolate malfunctions within interface test adapters
- Isolate malfunctions within SIAs
- Remove or replace test station cable assembly pins or connectors
- Remove or replace test station minor hardware, such as light bulbs or fuses

This cluster consists of two variations. One group maintains EF-111A/FB-111A avionics systems (automatic test stations), and the other is involved with team leader/quality assurance functions.

Comparison of Specialty Jobs

Nine clusters and three IJTs were identified in the AFSC 451X6 job structure analysis. All groups performed tasks related to general administrative and supply functions and general avionics maintenance. The differences depend on the specific test stations and assigned LRUs worked on and the amount of time spent on the technical tasks involving these specific systems. This dictates the cluster or IJT to which an individual or group of individuals are assigned.

The specialty jobs of this career ladder fall into three distinct categories. The first is a general category in which personnel with both shreds are found. Included are two clusters (Technical Training Instructor and Supervisor) and one independent job (Production Control). The second category of jobs is held primarily by personnel with an A-shred and consists of four clusters (Support Personnel, Automatic Test Station Production Team Leader, Automatic Test Station Production Technician, and Avionic Intermediate Shop/Replacement Operations Maintenance Technician) and an independent job (Avionic Receiver-Transmitter-Modulator Maintenance Technician). The final

category is predominately manned by airmen with a B-shred. There are four clusters identified in this category, Electronic Countermeasures Maintenance Technician, Manual and Electronic Warfare Maintenance Technician, AN/ALM-204 Test Station and LRU Maintenance Technician, and Penetration Aids Maintenance Technician.

The test stations used or operated by specialty job groups are presented in Table 5. It was noted that Manual and Electronic Warfare Maintenance Technicians are involved with several test stations--mockup, identification friend or foe (IFF) (APX 60) (67 percent), mockup, inertial navigation units (IMU) (24 percent), mock-up ultra high frequency (UHF) (ARC-164) (72 percent), countermeasure receiver set test stations (12A16891) (58 percent), and digital process test stations (185) (51 percent). Twenty-four percent of the Automatic Test Station Production Technicians were involved with the terrain following radar mock-up test stations. The Pen Aids Maintenance Technicians were involved with four test stations--mockup, identifications friend or foe (IFF) (APX-60) (19 percent); mockup, ultra high frequency (UHF) (ARC-164) (25 percent); countermeasure receiver set test station (22 percent); and penetration aids test station (94 percent). The Avionic Intermediate Shop/Replacement Operations Maintenance Technicians are heavily involved with the test station avionic intermediate shop (AIS) computer (69 percent), the test station AIS ATSCS (43 percent), and the test station EW (52 percent). As previously mentioned, use of specific test stations by personnel in the technical jobs helps differentiate among them.

ANALYSIS OF DAFSC GROUPS

In addition to examining the job structure of the F/FB-111 Avionics Test Stations and Components specialty (as discussed in the SPECIALTY JOBS section), this report also includes an analysis of tasks performed at each skill level. This information can be used to evaluate whether personnel are utilized in the manner specified by the Specialty Descriptions (AFR 39-1) and can serve as one basis for considering changes to current utilization policies and training programs.

The 451X6 career ladder is divided into two shreds (A and B) at the 3- and 5-skill levels. A comparison of duties and tasks performed between 3- and 5-skill level personnel from both A and B shreds indicates the jobs they perform are essentially the same within each distinct shred; therefore, 3- and 5-skill levels from each shred are discussed as one group (45136A/45156A and 45136B/45156B, respectively). The distribution of skill-level members across the career ladder specialty jobs is shown in Table 6. This table indicates that the largest percentage (60 percent) of A-shred members are working within the Automatic Test Stations Production Technician job, while the largest percentage (48 percent) of B-shred members are working within the Manual and Electronic Warfare Maintenance Technician job. To give further indications of how skill-level groups are working within this ladder, the relative time spent on each duty by shreds and skill-level groups is presented in Table 7.

TABLE 5

AVIONICS TEST STATIONS, MOCKUPS, OR AIDS MAINTAINED OR OPERATED BY
AT LEAST 20 PERCENT OF DAFSC 451X6 SPECIALTY JOB GROUPS

TEST STATIONS, MOCKUPS, OR AIDS	SUPPORT PERSONNEL	TECHNICAL TRAINING		PRODUCTION CONTROLLER	SUPERVISOR
		INSTRUCTOR	CONTROLLER		
MOCKUP, IDENTIFICATION FRIEND OR FOE (IFF) (APX-64)	7	4	0	8	
MOCKUP, INERTIAL NAVIGATION UNITS (INU)	0	0	0	3	
MOCKUP, ULTRA HIGH FREQUENCY (UHF) (ARC-164)	7	8	0	8	
TEST STATION, AVIONIC INTERMEDIATE SHOP (AIS), COMPUTER (3396B-56G01)	0	19	0	6	
TEST STATION, AIS, ATSCS (3396B-71G01)	0	19	0	4	
TEST STATION, COUNTERMEASURE RECEIVER SET (12A16891)	0	15	0	9	
TEST STATION, DIGITAL PROCESSOR (185)	0	7	0	12	
TEST STATION, AIS, EW (3396B-51G01)	0	0	0	0	
TEST STATION, COMPUTER (12A16803)	0	0	0	0	
TEST STATION, PENETRATION AIDS (12A6811)	0	0	0	0	
TEST STATION, RECEIVER-TRANSMITTER-MODULATOR (12A6802)	0	0	0	0	
TEST STATION, RECEIVER-TRANSMITTER-MODULATOR (12A6872)	0	0	0	0	
TEST STATION, TERRAIN FOLLOWING RADAR MOCKUP	7	0	0	3	

TABLE 5 (CONTINUED)

AVIONICS TEST STATIONS, MOCKUPS OR AIDS MAINTAINED OR OPERATED BY
AT LEAST 20 PERCENT OF DAFSC 451X6 SPECIALTY JOB GROUPS

TEST STATIONS, MOCKUPS, OR AIDS	ELECTRONIC COUNTER- MEASURES TECHNICIAN	MANUAL AND ELECTRONIC WARFARE TECHNICIAN	AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN	PENETRATION AIDS MAINTENANCE TECHNICIAN
MOCKUP, IDENTIFICATION FRIEND OR FOE (IFF) (APX-64)	13	67	3	19
MOCKUP, INERTIAL NAVIGATION UNITS (INU)	0	24	0	0
MOCKUP, ULTRA HIGH FREQUENCY (UHF) (ARC-164)	13	72	3	25
TEST STATION, AVIONIC INTERMEDIATE SHOP (AIS), COMPUTER (3396B-56G01)	0	3	0	3
TEST STATION, AIS, ATSCS (3396B-71G01)	0	1	0	0
TEST STATION, COUNTERMEASURE RECEIVER SET (12A16891)	6	58	11	22
TEST STATION, DIGITAL PROCESSOR (185)	3	51	0	6
TEST STATION, AIS, EW (3396B-51G01)	0	0	6	3
TEST STATION, COMPUTER (12A16803)	0	0	3	0
TEST STATION, PENETRATION AIDS (12A6811)	0	0	0	94
TEST STATION, RECEIVER-TRANSMITTER-MODULATOR (12A6802)	0	0	0	0
TEST STATION, RECEIVER-TRANSMITTER-MODULATOR (12A6872)	0	0	0	0
TEST STATION, TERRAIN FOLLOWING RADAR MOCKUP	0	1	0	0

TABLE 5 (CONTINUED)

AVIONICS TEST STATIONS, MOCKUPS OR AIDS MAINTAINED OR OPERATED BY
AT LEAST 20 PERCENT OF DAFSC 451X6 SPECIALTY JOB GROUPS

TEST STATIONS, MOCKUPS, OR AIDS	AUTOMATIC TEST STATION PRODUCTION TEAM LEADER	AUTOMATIC TEST STATION PRODUCTION TECHNICIAN	AVIONIC RECEIVER- TRANSMITTER- MODULATOR MAINTENANCE TECHNICIAN	AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN
MOCKUP, IDENTIFICATION FRIEND OR FOE (IFF) (APX-64)	0	0	0	0
MOCKUP, INERTIAL NAVIGATION UNITS (INU)	15	9	0	0
MOCKUP, ULTRA HIGH FREQUENCY (UHF) (ARC-164)	0	0	0	0
TEST STATION AVIONIC INTERMEDIATE SHOP (AIS), COMPUTER (3396B-56G01)	8	6	0	69
TEST STATION, AIS, ATSCS (3396B-71G01)	8	4	0	43
TEST STATION, COUNTERMEASURES RECEIVER SET (12A16891)	0	0	0	2
TEST STATION, DIGITAL PROCESSOR (185)	16	0	0	2
TEST STATION, AIS, EW (3396B-51G01)	8	2	0	52
TEST STATION, COMPUTER (12A16803)	31	13	0	9
TEST STATION, PENETRATION AIDS (12A6811)	8	0	0	4
TEST STATION, RECEIVER-TRANSMITTER-MODULATOR (12A6802)	8	13	75	0
TEST STATION, RECEIVER-TRANSMITTER-MODULATOR (12A6872)	0	5	38	4
TEST STATION, TERRAIN FOLLOWING RADAR MOCKUP	8	24	0	6

TABLE 6

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS

SPECIALTY JOBS	DAFSC 45136A/56A (N=311)		DAFSC 45136B/56B (N=272)		DAFSC 45176 (N=221)	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
I. SUPPORT PERSONNEL	3	1%	0	0	11	5%
II. TECHNICAL TRAINING INSTRUCTOR	14	5%	5	2%	7	3%
III. PRODUCTION CONTROLLER	3	1%	1	*	1	*
IV. SUPERVISOR	12	4%	20	7%	86	39%
V. ELECTRONIC COUNTERMEASURES MAINTENANCE TECHNICIAN	2	1%	29	11%	0	0
VI. MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN	3	1%	131	48%	34	15%
VII. AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN	2	1%	31	11%	3	1%
VIII. PENETRATION AIDS MAINTENANCE TECHNICIAN	0	0	22	8%	10	5%
IX. AUTOMATIC TEST STATION PRODUCTION TEAM LEADER	11	3%	0	0	2	1%
X. AUTOMATIC TEST STATION PRODUCTION TECHNICIAN	186	60%	4	1%	31	14%
XI. AVIONIC RECEIVER-TRANSMITTER-MODULATOR MAINTENANCE TECHNICIAN	8	2%	0	0	0	0
XII. AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN	39	12%	4	1%	11	5%
NOT GROUPED	28	9%	25	9%	25	11%
TOTAL	311	100%	272	100%	221	100%

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 7

AVERAGE TIME SPENT ON DUTIES BY DAFSC GROUPS

DUTIES	DAFSC 45136A/ 45156A (N=311)		DAFSC 45136B/ 45156B (N=272)		DAFSC 45176 (N=221)	
A. ORGANIZING AND PLANNING	2		2		2	11
B. DIRECTING AND IMPLEMENTING	2		2		2	11
C. EVALUATING AND INSPECTING	2		2		2	12
D. TRAINING	7		5		11	11
E. PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	14		13		18	18
F. PERFORMING GENERAL AVIONICS MAINTENANCE	28		30		15	15
G. MAINTAINING COMMON AUTOMATIC TEST EQUIPMENT (CATE)	10		3		3	3
H. MAINTAINING AVIONIC INTERMEDIATE SHOP/REPLACEMENT (AIS/R) TEST STATIONS	5		1		2	2
I. MAINTAINING AUTOMATIC TEST SETS AND MOCKUPS	1		*		*	*
J. MAINTAINING CENTRAL PROCESSORS AND CONTROLLERS (CENPAC), MAGNETIC TAPE UNITS (MTU), AND TAPE READERS	2		*		*	*
K. MAINTAINING ATTITUDE AND RATE (6805) TEST STATIONS	*		*		*	*
L. MAINTAINING INDICATORS AND MODULES (6846), INDICATORS AND SENSORS (6876), AND ELECTRONIC SYSTEMS (6886) TEST STATIONS	1		0		*	*
M. MAINTAINING COMPUTER (6803), NAVIGATION/FLIGHT CONTROL (6873), AND CONVERTER/FLIGHT CONTROL (6883) TEST STATIONS	1		*		*	*
N. MAINTAINING RADAR ALTIMETER (6836), VIDEO (6815, 6875, 6885) AND APQ-130 ATTACK RADAR SUBSYSTEM TEST STATIONS	1		0		*	*
O. MAINTAINING DOPPLER RADAR (6868 AND 6888) TEST STATIONS	*		0		*	*
P. MAINTAINING FLUID PRESSURIZATION (65AN), AND RECEIVER-TRANSMITTER-MODULATOR (6802, 6872, AND 6882) TEST STATIONS	1		*		*	*
Q. MAINTAINING SERVOS AND INDICATORS (6825 AND 6895) TEST STATIONS	*		*		*	*
R. MAINTAINING DIGITAL NAVIGATION AND WEAPONS DELIVERY (6863) TEST STATIONS	1		0		*	*

* Less than .5 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 7 (CONTINUED)
AVERAGE TIME SPENT ON DUTIES BY DAFSC GROUPS

DUTIES	DAFSC 45136A/ 45156A (N=311)	DAFSC 45136B/ 45156B (N=272)	DAFSC 45176 (N=221)
S. MAINTAINING AUTOMATIC LINE REPLACEABLE UNITS (LRU)	20	1	4
T. MAINTAINING DISPLAY TEST STATIONS (6887) AND INDICATOR DISPLAY SYSTEM MOCKUPS	*	0	*
U. MAINTAINING MANUAL AND ELECTRONIC WARFARE (EW) TEST SETS AND MOCKUPS	*	16	4
V. MAINTAINING MANUAL TEST STATIONS AND LRUs	*	2	*
W. MAINTAINING EB-111 SATELLITE COMMUNICATIONS (SATCOM) LRUs	0	2	*
X. MAINTAINING MANUAL TEST STATIONS AND LRUs	*	12	4
Y. MAINTAINING ELECTRONIC COUNTERMEASURES (ECM) PODS AND ASSIGNED TEST EQUIPMENT	*	5	1
Z. MAINTAINING AN/ALM-204 TEST STATIONS AND ASSIGNED LRUs	*	5	1

* Less than .5 percent

NOTE: Columns may not add to 100 percent due to rounding

As can be seen from the tables, as an individual progresses through the skill levels, slightly more supervisory and administrative responsibilities are assumed. Also, in this progression, there is a slight decline in the amount of time spent performing technical duties as skill levels increase. More detailed descriptions relative to how skill-level groups are working and the differences, if any, between jobs they perform are presented below.

Skill-Level Descriptions

DAFSC 45136A/45156A. The 311 members of this 3-/5-skill-level A-shred group comprise 39 percent of the total survey sample. Their job is primarily technical and administrative in nature. As can be seen in Table 7, 72 percent of their time is spent performing tasks in duties dealing with general avionics maintenance, general administrative and supply, common automatic test equipment (CATE), and maintenance of automatic test stations (Duties E, F, G, and S). The remaining time is spread among 21 other duties. Group members perform an average of 102 tasks, with 97 tasks accounting for 50 percent of their job time. Sixty percent of these personnel are found in the Automatic Test Station Production Technician job. Table 8 displays the representative tasks performed by this group, and Table 9 presents tasks which best differentiate A-shred 3-/5-skill-level people from 7-skill-level members.

DAFSC 45136B/45156B. This group of 272 B-shred 3-/5-skill-level members represents 34 percent of the total sample. Their job is also administrative and technical in nature, with 43 percent of their time spent on tasks related to performing general avionics maintenance and general administrative and supply (Duties E and F), while maintaining manual and EW test sets and maintaining manual test stations and LRUs (Duties U and X) account for another 28 percent of the incumbents time. The remaining time is spread among 17 other duties. Forty-eight percent of these individuals are working in the Manual and Electronic Warfare Maintenance Technician job (see Table 6). Members in this group perform an average of 100 tasks. Examples of representative tasks are presented in Table 10, and the tasks which best differentiate these B-shred 3-/5-skill-level members from 7-skill-level members are in Table 11.

DAFSC 45176. Twenty-seven percent (221 members) of the total sample are represented in this group of 7-skill-level airmen. Supervisory and administrative duties consume the majority (63 percent) of this group's time. They also spend 15 percent of their job time on general avionics maintenance, while their remaining time is sparingly spent on the technical aspects of the job. The Supervisor cluster contains 39 percent of these 7-levels, followed by Manual and Electronic Warfare Maintenance Technician (15 percent) and the Automatic Test Stations Production Technician with 14 percent (Table 6). There were two types of 7-levels differentiated by the type of tasks, performed. One group performed supervisory as well as technical tasks, while the other group performed primarily supervisory tasks. Personnel at this skill level perform an average of 99 tasks, with 90 tasks accounting for 50 percent of their job time. Table 12 identifies representative tasks for these members, and Tables 9 and 11 present tasks which best differentiate between those performed by 3-/5-skill-level personnel and 7-skill-level personnel.

TABLE 8
REPRESENTATIVE TASKS PERFORMED BY
DAFSC 45136A/56A PERSONNEL
(N=311)

TASKS	PERCENT MEMBERS PERFORMING
F214 Clean shop facilities	88
F219 Inspect and clean test station blowers and filters	82
F263 Remove or replace LRU minor hardware	81
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	81
F281 Solder components, such as relays, resistors, or plugs	79
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	78
F264 Remove or replace LRU pins or connectors	77
E126 Annotate, initiate, or complete AFTO Forms 349 (Maintenance Data Collection Record)	73
F267 Remove or replace shop replaceable units (SRU)	73
E134 Complete AF Forms 2005 (Issue/Turn in Request)	71
F272 Remove or replace test station cable assembly pins or connectors	70
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	69
F244 Perform maintenance tape tests of test stations	67
F217 Fabricate or rebuild cables	67
F254 Remove or replace coaxial cable wiring or pins	67
E120 Annotate AFTO Forms 95 (Significant Historical Data)	66
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	66
F235 Isolate malfunctions in test station adapters	66
F236 Isolate malfunctions in test stations through interconnects of an installed LRU	65
F275 Remove or replace tester replaceable units (TRU)	63
F243 Perform functional checks or test and inspection (T and I) of LRUs issued from supply	63
F280 Solder components, such as integrated circuits or semiconductors	63
F241 Pack or unpack LRUs or equipment	62
G298 Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	62

TABLE 9

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 45136A/45156A AND
45176 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 45136A/ 45156A (N=311)	DAFSC 45176 (N=221)	DIFFERENCE
F219 INSPECT AND CLEAN TEST STATION BLOWERS AND FILTERS	82	45	+37
G297 ISOLATE MALFUNCTIONS IN STIMULUS CONTROLLERS USING MAINTENANCE TAPES, MANUAL PROGRAMMING, OR SCHEMATICS	62	25	+37
G301 ISOLATE MALFUNCTIONS IN TEST POINT CONTROLLERS USING MANUAL PROGRAMMING, MAINT TAPES, OR SCHEMATICS	60	24	+36
G302 ISOLATE MALFUNCTIONS IN TEST POINT RELAYS USING PROGRAMMING, MAINT TAPES, OR SCHEMATICS	61	25	+36
F264 REMOVE OR REPLACE LRU PINS OR CONNECTORS	77	42	+35
G284 ALIGN MICROLOGIC POWER SUPPLIES	56	21	+35
G298 ISOLATE MALFUNCTIONS IN STIMULUS RELAYS USING MAINTENANCE TAPES, MANUAL PROGRAMMING, OR SCHEMATICS	62	27	+35
G263 REMOVE OR REPLACE LRU MINOR HARDWARE	81	47	+34
F274 REMOVE OR REPLACE TEST STATION MINOR HARDWARE SUCH AS LIGHT BULBS OR FUSES	81	48	+33
G292 ISOLATE MALFUNCTIONS IN COUNTER TIMERS USING MAINTENANCE TAPES OR SCHEMATICS	55	22	+33
* * * * *	* * * * *	* * * * *	* * * * *
C83 WRITE APRs	31	80	-49
B31 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED MATTERS	19	67	-48
C78 INSPECT PERSONNEL FOR COMPLIANCE WITH MILITARY STANDARDS	15	59	-44
C85 WRITE RECOMMENDATIONS FOR AWARDS AND DECORATIONS	12	52	-40
B47 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	12	51	-39
A20 PLAN OR SCHEDULE WORK ASSIGNMENTS	13	52	-39
C77 INSPECT IN-SHOP MAINTENANCE ACTIONS	14	52	-38
D89 ASSIGN ON-THE-JOB TRAINING (OJT) TRAINERS	15	51	-36
D107 MAINTAIN TRAINING RECORDS	35	70	-35
A21 PLAN OR SCHEDULE WORK PRIORITIES	17	50	-33

TABLE 10
REPRESENTATIVE TASKS PERFORMED BY
45136B/56B PERSONNEL
(N=272)

TASKS	PERCENT MEMBERS PERFORMING
F214 Clean shop facilities	89
F219 Inspect and clean test station blowers and filters	79
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	78
F281 Solder components, such as relays, resistors, or plugs	78
F263 Remove or replace LRU minor hardware	77
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	76
F254 Remove or replace coaxial cable wiring or pins	74
F264 Remove or replace LRU pins or connectors	74
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	69
F262 Remove or replace low voltage power supplies	69
F280 Solder components, such as integrated circuits or semiconductors	69
E134 Complete AF Forms 2005 (Issue/Turn in Request)	68
E126 Annotate, initiate, or complete AFTO Forms 349	67
F217 Fabricate or rebuild cables	67
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	65
F221 Inspect equipment for current calibration dates	64
F241 Pack or unpack LRUs or equipment	64
F261 Remove or replace high voltage power supplies	64
E120 Annotate AFTO Forms 95 (Significant Historical Data)	63
F202 Align low voltage power supplies	63
F267 Remove or replace shop replaceable units (SRU)	63
E162 Inventory tools, such as consolidated tool kits (CTK) and tool chits	62
F210 Clean contacts	62
F224 Inventory test stations, cabinets, rollaways, simulators, or mockups	61
F201 Align high voltage power supplies	60

TABLE 11

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 45136B/45156B AND
45176 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 45136B/ 45156B (N=272)	DAFSC 45176 (N=221)	DIFFERENCE
F219 INSPECT AND CLEAN TEST STATION BLOWERS AND FILERS	79	44	+35
F264 REMOVE OR REPLACE LRU PINS OR CONNECTORS	73	42	+32
F254 REMOVE OR REPLACE COAXIAL CABLE WIRING OR PINS	74	42	+32
F214 CLEAN SHOP FACILITIES	89	57	+32
F262 REMOVE OR REPLACE LOW VOLTAGE POWER SUPPLIES	69	38	+31
F281 SOLDER COMPONENTS, SUCH AS RELAYS, RESISTORS, OR PLUGS	77	47	+31
F263 REMOVE OR REPLACE LRU MINOR HARDWARE	77	47	+30
F274 REMOVE OR REPLACE TEST STATION MINOR HARDWARE, SUCH AS LIGHT BULBS OR FUSES	77	47	+30
F261 REMOVE OR REPLACE HIGH VOLTAGE POWER SUPPLIES	64	34	+30
F220 INSPECT AND CLEAN TEST STATIONS, SIMULATORS, MOCKUPS, OR LINE REPLACEABLE UNITS (LRU)	75	46	+30
U962 PERFORM OPERATIONAL TESTS OF ARC-164 UHF RECEIVER-TRANSMITTERS	67	38	+29
* * * * *	* * * * *	* * * * *	* * * * *
C83 WRITE APRs	28	80	-52
B31 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED MATTERS	22	67	-45
C85 WRITE RECOMMENDATIONS FOR AWARDS AND DECORATIONS	10	52	-42
C78 INSPECT PERSONNEL FOR COMPLIANCE WITH MILITARY STANDARDS	21	59	-38
C77 INSPECT IN-SHOP MAINTENANCE ACTIONS	14	52	-38
A20 PLAN OR SCHEDULE WORK ASSIGNMENTS	15	52	-37
A8 DETERMINE WORK PRIORITIES	27	62	-35
D107 MAINTAIN TRAINING RECORDS	35	70	-35
B47 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	16	51	-35
D89 ASSIGN ON-THE-JOB TRAINING (OJT) TRAINERS	16	51	-35

TABLE 12
 REPRESENTATIVE TASKS PERFORMED BY
 DAFSC 45176 PERSONNEL
 (N=239)

TASKS	PERCENT MEMBERS PERFORMING
C83 Write APRs	80
D107 Maintain training records	70
B31 Counsel personnel on personal or military-related matters	67
D88 Annotate training records	67
A8 Determine work priorities	62
E192 Review AF Forms 244 and 245	62
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	61
C78 Inspect personnel for compliance with military standards	59
D92 Conduct OJT	58
E122 Annotate or complete AFTO Forms 244 and 245 (Industrial/Support Equipment Record)	58
E134 Complete AF Forms 2005 (Issue/Turn in Request)	58
D95 Counsel trainees on training progress	57
F214 Clean shop facilities	57
A1 Assign maintenance and repair work	55
E120 Annotate AFTO Forms 95 (Significant Historical Data)	54
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	54
F221 Inspect equipment for current calibration dates	54
A20 Plan or schedule work assignments	52
C77 Inspect in-shop maintenance actions	52
C85 Write recommendations for awards and decorations	52
E162 Inventory tools, such as consolidated tool kits (CTK) and tool chits	52
B47 Interpret policies, directives, or procedures for subordinates	51
D89 Assign on-the-job training (OJT) trainers	51
D91 Certify or decertify personnel on task qualification	51
D105 Evaluate progress of trainees	51
A21 Plan or schedule work priorities	50
E184 Perform periodic or routine inspections of tools	50

Summary

As members in the 451X6 career ladder progress to the 7-skill level, their job increases in supervisory responsibilities, but also continues to be somewhat technical. At the 3-/5-skill level, technical and administrative tasks occupy a majority of both the A- and B-shred personnel's job time.

ANALYSIS OF AFR 39-1 SPECIALTY DESCRIPTIONS

Occupational survey data for each of the AFSC 451X6 skill levels were compared to the AFR 39-1 Specialty Descriptions for the Avionics Test Station and Components career ladder (DAFSCs 45136A/45156A; 45136B/45156B; and 45176), dated 1 February 1988. These descriptions are intended to give a broad overview of the duties and tasks performed by each skill level of the career ladder.

Based on the above DAFSC analysis, the 3-/5-skill-level descriptions appear complete and accurately reflect the broad range of duties and responsibilities of Avionics Test Stations and Component Personnel. The 7-skill-level description also appears complete and accurate. The 7-skill-level description clearly indicates involvement with not only the supervisory responsibilities, but also the technical aspects of their jobs.

TRAINING ANALYSIS

Occupational survey data are used to assist in the planning, development, review, and evaluation of various training programs and documents, such as the STS and POI. These training efforts are particularly relevant to personnel working in their first assignment. Some factors which may be used in the analysis include percent of first enlistment (1-48 months TAFMS) personnel performing tasks, along with Task Difficulty (TD) ratings (as explained in the Task Factor Administration section). Additionally, a Training Requirements Analysis (TRA) is also being done for this AFSC by the Training Development Services Branch, USAFOMS, and should be available to training personnel by March 1991. Although TE data are unavailable for this study, the TRA and TD data should provide technical school personnel with enough information to make training program decisions. The above items are two factors which are used in reviewing the AFSC 451X6 STS and POIs for course G3ABR45136A and G3ABR45135B, based on the matching of inventory tasks to the appropriate sections of the POIs and STS by experienced technical school personnel from Lowry Technical Training Center. A complete computer list displaying percent members performing and TD ratings for each task, along with STS and POI matchings, has been forwarded to the technical school for use in further reviews of training documents. A summary of that information is presented below.

TABLE 13

TASKS RATED HIGHEST IN TASK DIFFICULTY (TD)

TASKS	TASK DIFF	PERCENT MEMBERS PERFORMING									
		A		A		B		B		B	
		1ST JOB	ENL	1ST JOB	ENL	1ST JOB	ENL	1ST JOB	ENL	1ST JOB	ENL
X1249	Isolate malfunctions in PEN AIDS test station RF generators	7.65	0	0	0	4	11	9	7	7	7
X1215	Align PEN AIDS test station RF generators	7.59	0	0	0	8	13	9	7	7	7
X1248	Isolate malfunctions in PEN AIDS test station RF evaluation units	7.56	0	0	0	4	12	9	7	7	7
Z1344	Align AN/ALM-204 systron donner generators	7.54	0	0	0	0	8	12	2	2	2
X1235	Isolate malfunctions in CRS test station RF generators	7.44	0	0	1	4	14	19	9	9	9
X1214	Align PEN AIDS test station RF evaluation units	7.43	0	0	0	8	12	8	7	7	7
Y1313	Isolate malfunctions in AN/ALQ-131 ECM pods	7.40	0	0	1	23	11	7	2	2	2
X1216	Align PEN AIDS test station video evaluation units	7.38	0	0	0	4	11	8	7	7	7
X1252	Isolate malfunctions in PEN AIDS test station video evaluation units	7.36	0	0	0	8	11	8	7	7	7
X1224	Isolate malfunctions in AN/ALR-62 (V3) forward radar receivers	7.34	0	0	1	15	19	21	9	9	9
Z1347	Align AN/ALM-204 test station spectrum analyzers	7.34	0	0	0	0	9	11	1	1	1
Z1348	Align AN/ALM-204 test station TRUs	7.34	0	0	0	0	9	12	2	2	2
Z1349	Align digital analog conversion (DAC) in multiple matrix switches (MMS)	7.34	0	0	0	0	9	11	1	1	1
X1201	Align AN/ALR-62 (V3) forward radar receivers	7.31	0	0	1	15	20	21	10	10	10
S686	Isolate malfunctions in IRUs	7.30	5	9	14	0	0	0	4	4	4
V1317	Isolate malfunctions in QRC 80-01 ECM pods	7.30	0	0	0	8	2	6	2	2	2
G296	Isolate malfunctions in RF generators using maintenance tapes or schematics	7.27	8	14	19	12	19	22	17	17	17
H337	Calibrate AIS/R electronic warfare (EW) test stations using automatic test set calibration sets (ATSCS)	7.26	0	1	4	0	1	1	3	3	3
H377	Isolate malfunctions within SEL computers	7.25	0	0	2	0	0	2	2	2	2
X1207	Align CRS test station radio frequency (RF) generators	7.15	0	0	1	8	16	20	11	11	11
Z1345	Align AN/ALM-204 test pattern comparators	7.15	0	0	0	0	6	10	2	2	2
H336	Calibrate avionic intermediate shop/replacement (AIS/R) computer test stations using ATSCS	7.13	0	3	7	0	1	2	3	3	3
H339	Calibrate radio frequency (RF) test stations using ATSCS	7.10	0	4	5	0	2	2	2	2	2

Task Difficulty

The relative difficulty of each task in the inventory is assessed through ratings by 65 experienced 451X6 NCOs. These ratings were processed to produce an ordered listing of all tasks in terms of their relative difficulty. Ratings were standardized to have an average of 5.0, with a standard deviation equal to 1.0. Tasks rated the most difficult by AFSC 451X6 personnel are listed in Table 13 and are related to a variety of Avionics Test Station and Components functions. Many of these tasks involve maintaining manual test stations and LRUs, ECM PODs and assigned test equipment, AN/ALM-204 test stations and assigned LRUs, automatic LRUs, and PEN AIDS. Most of the tasks listed are performed by very few, if any, first-job and first-enlistment personnel.

First-Enlistment Personnel

In addition to the analysis of tasks and jobs across skill-level groups, it is also important to analyze jobs and tasks as they relate to experience in the career ladder. First-enlistment personnel are of particular interest in terms of resident training implications. The distribution of first-enlistment personnel across jobs is displayed in Figure 2.

As illustrated in Figure 2, first-enlistment personnel participate in a wide range of activities related to 451X6 functions and are members of all technically related job clusters and independent job types. More specifically, Figures 3 and 4 present the distribution of A and B shred first-enlistment personnel across specialty jobs, respectively. As illustrated in Figure 3, first-enlistment A-shred personnel are primarily found in the Automatic Test Stations Production Technician job (68 percent). Fifty-five percent of the B-shred personnel are working in the Manual and EW Maintenance Technician job (Figure 4). Since the first-enlistment group is the target population for initial skill training, determining the tasks they perform is most important. Table 14 provides tasks commonly performed by airmen within their first enlistment (1-48 months TAFMS) for the total career ladder, while Tables 15 and 16 present common tasks performed by A and B shred first-enlistment personnel. The similarity of tasks presented in the above tables are the results of the generic manner in which the tasks are written. These common tasks should not necessarily be construed as being performed in the same manner on different types of equipment. Some may be the same, while others may change due to the specifics of application. Test equipment used by these personnel are important factors in determining tasks performed and training needs.

Related equipment used and operated by A- and B-shred first-enlistment personnel also provide a good tool for determining how first-enlistment personnel are working and some items which they should be trained on. Tables 17 and 18 provide examples of equipment commonly used by A- and B-shred personnel. A majority of the equipment used by 20 percent or more of the first-enlistment personnel is also taught in the related basic courses.

FIRST-ENLISTMENT PERSONNEL ACROSS SPECIALTY JOBS (AFSC 451X6A/B)

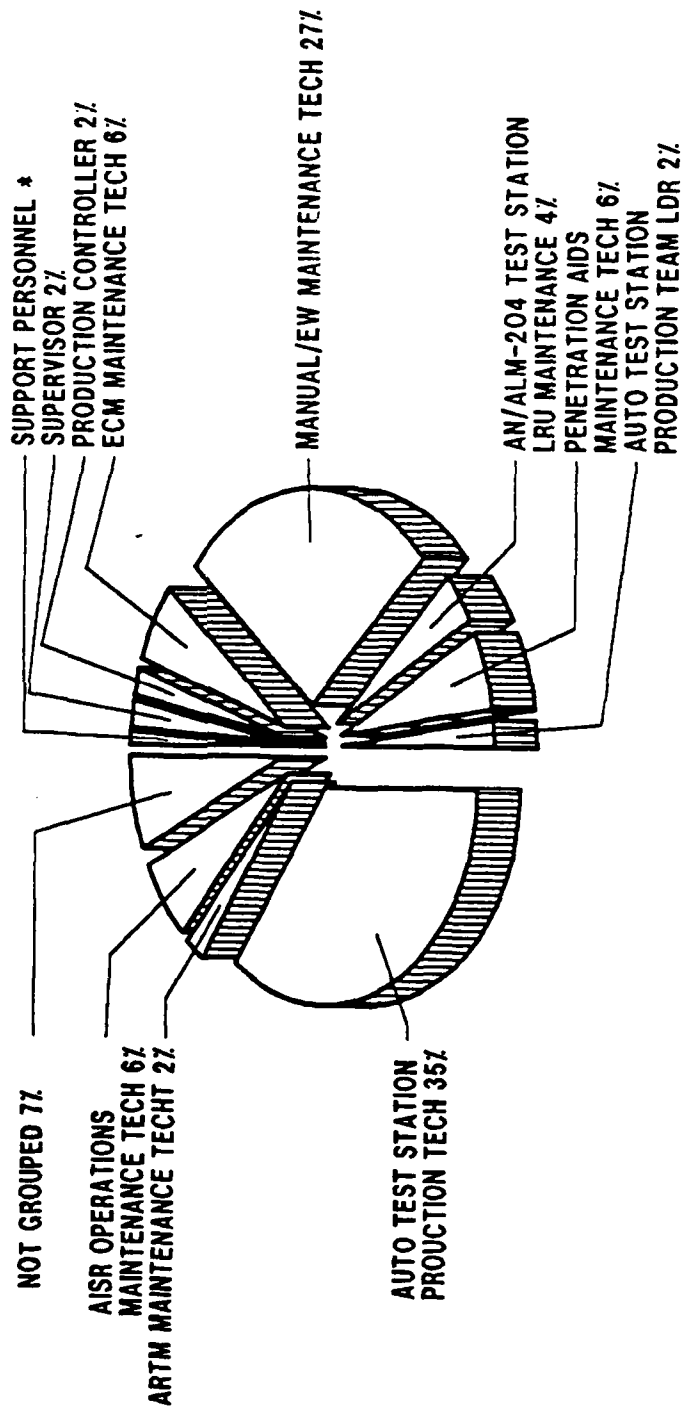


FIGURE 2

* INDICATES LESS THAN 1 PERCENT

451X6A FIRST-ENLISTMENT PERSONNEL ACROSS SPECIALTY JOBS (N = 90)

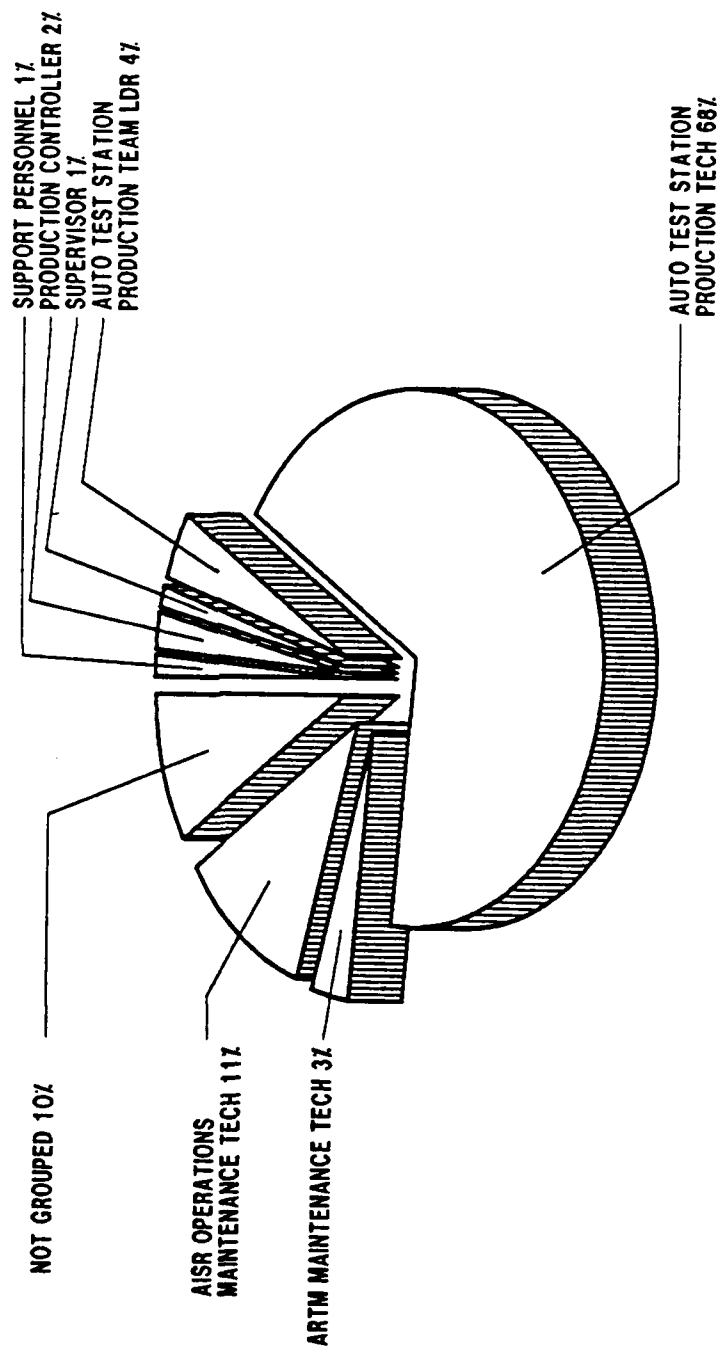


FIGURE 3

451X6B FIRST-ENLISTMENT PERSONNEL ACROSS SPECIALTY JOBS (N = 85)

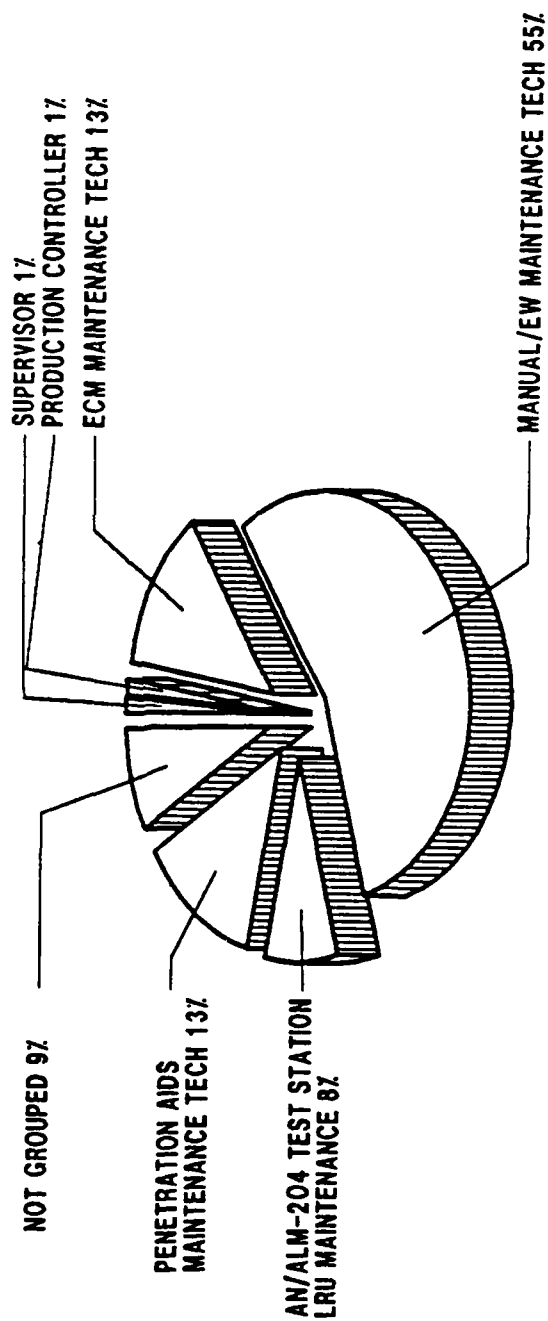


FIGURE 4

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY
451X6A/B FIRST-ENLISTMENT PERSONNEL
(N=177)

TASKS	PERCENT MEMBERS PERFORMING
F214 Clean shop facilities	92
F219 Inspect and clean test station blowers and filters	85
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	85
F263 Remove or replace LRU minor hardware	83
F281 Solder components, such as relays, resistors, or plugs	82
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	79
F264 Remove or replace LRU pins or connectors	78
E126 Annotate, initiate, or complete AFTO Forms 349 (Maintenance Data Collection Record)	71
F254 Remove or replace coaxial cable wiring or pins	70
E134 Complete AF Forms 2005 (Issue/Turn in Request)	68
F217 Fabricate or rebuild cables	68
F241 Pack or unpack LRUs or equipment	67
F272 Remove or replace test station cable assembly pins or connectors	66
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	63
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	63
F267 Remove or replace shop replaceable units (SRU)	63
F280 Solder components, such as integrated circuits or semiconductors	63
E120 Annotate AFTO Forms 95 (Significant Historical Data)	62
F243 Perform functional checks or test and inspection (T and I) of LRUs issued from supply	60
F210 Clean contacts	59
F221 Inspect equipment for current calibration dates	59
F235 Isolate malfunctions in test station adapters	58
F236 Isolate malfunctions in test stations through interconnects of an installed LRU	57
F202 Align low voltage power supplies	57
F262 Remove or replace low voltage power supplies	57

TABLE 15
 REPRESENTATIVE TASKS PERFORMED BY
 451X6A FIRST-ENLISTMENT PERSONNEL
 (N=90)

TASKS	PERCENT MEMBERS PERFORMING
F214 Clean shop facilities	91
F219 Inspect and clean test station blowers and filters	87
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	86
F281 Solder components, such as relays, resistors, or plugs	86
F263 Remove or replace LRU minor hardware	85
F264 Remove or replace LRU pins or connectors	82
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	81
E126 Annotate, initiate, or complete AFTO Forms 349 (Maintenance Data Collection Record)	78
F272 Remove or replace test station cable assembly pins or connectors	77
F217 Fabricate or rebuild cables	72
F267 Remove or replace shop replaceable units (SRU)	71
F235 Isolate malfunctions in test station adapters	71
E134 Complete AF Forms 2005 (Issue/Turn in Request)	70
E120 Annotate AFTO Forms 95 (Significant Historical Data)	66
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	66
F254 Remove or replace coaxial cable wiring or pins	66
F244 Perform maintenance tape tests of test stations	65
F275 Remove or replace tester replaceable units (TRU)	64
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	63
F241 Pack or unpack LRUs or equipment	63
G298 Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	63
F236 Isolate malfunctions in test stations through interconnects of an installed LRU	63
F243 Perform functional checks or test and inspection (T and I) of LRUs issued from supply	62
G297 Isolate malfunctions in stimulus controllers using maintenance tapes, manual programming, or schematics	61
G302 Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics	61

TABLE 16
REPRESENTATIVE TASKS PERFORMED BY
451X6B FIRST-ENLISTMENT PERSONNEL
(N=85)

TASKS	PERCENT MEMBERS PERFORMING
F214 Clean shop facilities	94
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	85
F219 Inspect and clean test station blowers and filters	84
F263 Remove or replace LRU minor hardware	82
F281 Solder components, such as relays, resistors, or plugs	80
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	78
F264 Remove or replace LRU pins or connectors	75
F254 Remove or replace coaxial cable wiring or pins	74
F241 Pack or unpack LRUs or equipment	70
F280 Solder components, such as integrated circuits or semiconductors	70
E134 Complete AF Forms 2005 (Issue/Turn in Request)	65
F217 Fabricate or rebuild cables	65
F210 Clean contacts	64
F262 Remove or replace low voltage power supplies	64
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	63
E126 Annotate, initiate, or complete AFTO Forms 349 (Maintenance Data Collection Record)	63
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	60
F243 Perform functional checks or test and inspection (T and I) of LRUs issued from supply	60
F221 Inspect equipment for current calibration dates	60
F269 Remove or replace solderless circuit card components	60
F278 Research manuals to determine fault isolation procedures	58
E120 Annotate AFTO Forms 95 (Significant Historical Data)	58
F261 Remove or replace high voltage power supplies	58
F202 Align low voltage power supplies	57
E162 Inventory tools, such as consolidated tool kits (CTK) and tool chits	56

TABLE 17

EQUIPMENT USED OR OPERATED BY 20 PERCENT OR
MORE AFSC 451X6A FIRST-ENLISTMENT PERSONNEL
(N=90)

<u>EQUIPMENT OPERATED</u>	<u>PERCENT MEMBERS RESPONDING</u>
MULTIMETER DIGITAL	91
OSCILLOSCOPE	90
TIMER COUNTER	79
POWER SUPPLIES	68
PULSE GENERATOR	58
SYNCHRO BRIDGE	51
MULTIMETER ANALOG	50
FREQUENCY COUNTER	48
SIGNAL GENERATOR	47
SYNCHRO STANDARD	44
CABLE REPAIR KIT	44
TORQUE WRENCHES	38
SPECTRUM ANALYZER	37
POWER METER	34
ANGLE POSITION INDICATOR	34
PHASE ANGLE METER	27

TABLE 18

EQUIPMENT USED OR OPERATED BY 20 PERCENT OR
MORE AFSC 451X6B FIRST-ENLISTMENT PERSONNEL
(N=85)

<u>EQUIPMENT OPERATED</u>	<u>PERCENT MEMBERS RESPONDING</u>
OSCILLOSCOPE	96
MULTIMETER DIGITAL	93
SIGNAL GENERATOR	86
FREQUENCY COUNTER	85
POWER SUPPLIES	85
POWER METER	84
TORQUE WRENCHES	81
POWER RF METER	80
MULTIMETER ANALOG	71
PULSE GENERATOR	66
TIMER COUNTER	66
CABLE REPAIR KIT	64
POWER OUTPUT METER	51
AUDIO OSCILLATOR	48
SPECTRUM ANALYZER	47
DISTORTION ANALYZER	38
ANGLE POSITION INDICATOR	38
HY-POT TESTER	22

Specialty Training Standard (STS)

During the course of this analysis, technical school personnel from Lowry Technical Training Center matched inventory tasks to the current STS. Utilizing the results of the matched data, a review of STS 451X6, dated April 1987, was conducted.

Overall, most major areas of the STS are supported by survey data. There are, however, elements of the STS which, on the surface, do not appear to be supported due to less than 20 percent members of the criterion groups (first-term, 5-, and 7-skill levels) performing matched tasks. These elements are related to various 451X6 career ladder functions. Some are dashed (-), some are knowledge, some are related to supply and other general Avionics maintenance, while others are related to the technical aspects of the career ladder. Close examination of these nonsupported areas reveals that several areas are indeed jobs being performed by personnel in the 451X6 career ladder. Low percent members performing matched tasks, in this case, may be due to this being a shredded AFSC and a function of performing specialized jobs within A or B shreds. In either case, these areas should be carefully reviewed by technical school personnel to determine if the unsupported elements are appropriate for inclusion in the STS. Some examples of unsupported elements are presented in Table 19. A full listing of all STS elements having less than 20 percent members performing matched tasks is presented in Appendix B.

In addition to reviewing those STS paragraphs which are not supported, training development personnel should also review tasks not referenced to the STS, but which have more than 20 percent members performing and relatively high TD ratings (see Table 20). A majority of these nonreferenced tasks are related to administrative supply and general avionics duties. All nonreferenced tasks should be reviewed by training managers and a decision made as to whether or not they should be covered by this STS.

Plans of Instruction

The initial training program for the F/FB-111 Avionics Test stations and components personnel is divided into two basic courses: Automatic Test Stations (A-shred) - G3ABR45136A (36.4 weeks), and Manual Test Stations (B-shred) - GABR45136B (33.6 weeks). Both courses include electronic principles and are taught at Lowry AFB CO. These two courses make up a basic technical training program intended to train personnel new to this career ladder.

The current POIs for initial training of DAFSC 451X6 respondents were examined. Based on the assistance from experienced technical school subject-matter experts, a matching of inventory tasks to each POI was accomplished, and computer products were generated displaying the results of the matching process. Data include TD ratings and percent members performing data for the first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) personnel. A discussion of each course is presented below.

TABLE 19

EXAMPLES OF UNSUPPORTED AFSC 451X6 STS ELEMENTS

ELEMENT AND MATCHED TASKS	PERCENT PERFORMING					TASK DIFF
	A-SHRED 1-48 TAFMS (N=90)	45156A (N=250)	TAFMS (N=85)	45156B (N=229)	45176 (N=221)	
30g(2). PERFORM BENCH CHECKS						
S769 PERFORM OPERATIONAL TEST OF TFR RADAR SET CONTROLS (RSC)	17	16	0	2	6	4.10
41b(1). RF SIGNAL GENERATOR						
G312 REMOVE OR REPLACE RF GENERATORS	16	19	19	18	16	3.08
51a(3). TROUBLESHOOT						
U902 ISOLATE MALFUNCTIONS IN AMP/DET TEST SET TO SRU OR COMPONENT LEVEL	0	0	11	14	7	5.83
51a(4). REPAIR						
U991 REMOVE OR REPLACE AMP/DET TEST SET SRUs OR COMPONENTS	0	0	8	13	7	3.87

TABLE 20

EXAMPLE OF TASKS NOT REFERENCED TO 451X6 STS

TASKS	PERCENT MEMBERS PERFORMING					TASK DIFF
	A-SHRED 1-48 TAFMS (N=90)	45156A (N=250)	B-SHRED 1-48 TAFMS (N=85)	45156B (N=229)	45176 (N=221)	
E122 Annotate or complete AFIO Forms 244 and 245 (Industrial/Support Equipment Record)	46	56	27	52	58	3.39
E161 Input maintenance data into computer automated maintenance system (CAMS)	36	36	34	38	38	4.92
E162 Inventory tools, such as consolidated tool kits (CTK) and tool chits	46	56	56	63	52	2.82
E183 Process due-in for maintenance (DIFM) items	12	20	7	24	29	3.76
F205 Align simulators or mockups	12	17	42	33	14	5.41
F217 Fabricate or rebuild cables	72	65	66	66	38	5.16
F280 Solder components, such as integrated circuits or semiconductors	58	65	71	70	43	5.43
E197 Verify mission capability (MICAP) conditions	7	20	8	20	39	4.25
F223 Install test stations in work area	20	22	25	35	25	4.37
F221 Inspect equipment for current calibration dates	59	60	60	64	54	2.43
E163 Maintain AF Forms 2005 suspense files	12	20	22	24	22	3.25

3ABR45136A Plan of Instruction

The POI for the G3ABR45136A course, dated April 1987, was reviewed using data resulting from tasks matched by operational and training personnel from Lowry Technical Training Center to criterion objectives. This 36.4 week course is designed to train career ladder personnel in maintaining automatic test stations and components on F/FB-111 aircraft in intermediate maintenance shops.

Generally, this course is supported by OSR data, with some exceptions. Some objectives were matched to tasks having less than 30 percent of the first-enlistment personnel performing. These objectives are related to several career ladder functions. Examples of unsupported paragraphs are presented in Table 21. A complete list of nonsupported objectives is presented in Appendix C.

There are a number of tasks performed by more than 30 percent of first-enlistment AFSC 45136A airmen that are not matched to any POI objective. Samples of these tasks are listed in Table 22. Many of these tasks deal with general avionics maintenance and maintaining common automatic test equipment (CATE). Technical school personnel should review these tasks to determine if they should be incorporated into the training program.

3ABR45136B Plan of Instruction

The POI for the G3ABR45136B course, dated April 1987, was also reviewed, using tasks matched by operational and training personnel from Lowry Technical Training Center to criterion objectives. This 33.6 week course is designed to train career ladder personnel in maintaining electronic warfare and manual test station and components on F/FB-111 aircraft in intermediate maintenance shops.

Generally, this course is supported by OSR data, with some exceptions which include objectives being matched to tasks with less than 30 percent of the first-enlistment personnel performing. These objectives related to such career ladder functions as test equipment calibration and magnetic tape operations. Examples of unsupported paragraphs are presented in Table 23. A complete list of nonsupported objectives is presented in Appendix D.

There are tasks performed by more than 30 percent of first-enlistment AFSC 45136B airmen that are not matched to any POI objective. Samples of these tasks are listed in Table 24. Many of these tasks deal with general avionics maintenance and maintaining manual and electronic warfare (EW) test sets and mockup. Technical school personnel should review these tasks to determine if they should be incorporated into the training program.

TABLE 21

EXAMPLES OF UNSUPPORTED POI G3ABR45136A OBJECTIVES

POI OBJECTIVES AND MATCHED TASKS	PERCENT MEMBERS PERFORMING				TASK DIFF	
	A	1ST JOB	A	1ST ENL		
II 7a. Given TO 00-35D-54, a list of deficiencies, and a list of deficiency categories, match each deficiency to its appropriate category. STS: 10d Meas: PC						
E158 Initiate or complete deficiency, service, or status reports	8		10		4.64	
F232 Isolate malfunctions in magnetic tape readers	0		9		6.35	
X 3b. Given extracts from TO 33D7-38-227-1, answer questions pertaining to basic facts and general operation principles of the Switching Interface Assembly (SIA) Power Supply with at least 80 percent accuracy.						
H378 Isolate malfunctions within SIA power supplies	8		7		6.27	
XI 2a. Given extracts from TOs 33D7-38-227-1 and 33D7-8-121-1, C/ATLAS dictionary and questions pertaining to the data flow and general operating principles of the Programmable Synchro/Resolver Simulator, select the appropriate response to each question with at least 80 percent accuracy.						
H353 Isolate malfunctions to programmable synchro/resolver simulators	5		4		5.85	
XII 4a. Given extracts from TOs 33D7-38-228-1, 33D7-77-50-1, a C/ATLAS Dictionary and questions pertaining to data flow and general operating principles of the Display Test Assembly, select the appropriate response to each question with at least 80 percent accuracy.						
H367 Isolate malfunctions within display test assemblies	0		2		6.40	

TABLE 22

EXAMPLES OF TASKS NOT REFERENCED TO G3ABR45136A POI

TASKS	PERCENT MEMBERS PERFORMING				TASK DIFF
	A	1ST JOB	A 1ST ENL		
G295 Isolate malfunctions in PPGs using front panel controls	21	33	6.75		
F236 Isolate malfunctions in test stations through interconnects of an installed LRU	55	63	6.54		
G294 Isolate malfunctions in micrologic power supplies using maintenance tapes or schematics	37	54	6.34		
G304 Isolate malfunctions in trygon power supplies	16	30	6.30		
G305 Isolate malfunctions in trygon power supply controllers	18	32	6.03		
F230 Isolate malfunctions in high voltage power supplies	32	39	5.94		
F231 Isolate malfunctions in low voltage power supplies	32	42	5.81		
F235 Isolate malfunctions in test station adapters	61	71	5.74		
F280 Solder components, such as integrated circuits or semiconductors	42	58	5.43		
G282 Align counter timers	37	42	5.38		
G289 Align trygon power supplies	18	34	5.38		
G290 Align trygon power supply controllers	18	30	5.34		
F272 Remove or replace test station cable assembly pins or connectors	76	78	5.27		
F217 Fabricate or rebuild cables	74	72	5.16		
F254 Remove or replace coaxial cable wiring or pins	68	67	5.13		
G284 Align micrologic power supplies	42	54	5.10		
F201 Align high voltage power supplies	47	53	4.92		
F281 Solder components, such as relays, resistors, or plugs	92	87	4.92		
G283 Align logic power supplies	42	54	4.85		
F264 Remove or replace LRU pins or connectors or components	87	82	4.76		
F224 Inventory test stations, cabinets, rollaways, simulators, or mockups	47	53	3.55		
G314 Remove or replace stimulus relays	37	56	3.54		
F269 Remove or replace solderless circuit card components	42	44	3.25		
E142 Complete DD Forms 1348-1 (DOD Single Line Item Release/Receipt Document)	34	40	3.16		
G310 Remove or replace micrologic power supplies	32	46	3.10		

TABLE 23

EXAMPLES OF UNSUPPORTED POI 3ABR45136B OBJECTIVES

POI OBJECTIVES AND MATCHED TASKS	PERCENT MEMBERS PERFORMING				TASK DIFF
	B	1ST JOB	B	1ST ENL	
I 7d. Given a list of statements, identify those statements which describe basic AGE calibration requirements with 75 percent accuracy.					
U900 Calibrate Category III test equipment	0	2			5.57
U899 Calibrate Category II test equipment	0	6			5.47

IV 1g. Given TO 33A1-3-378-2 and a DATAC Programmed Information data flow diagram, list the reference designator, signal name, or pin number at selected points throughout the diagram and answer questions relating to Programmed Information data flow. A minimum of 70 percent must be correctly completed for each task.					
G291 Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics	0	11			6.97

VII 1e. Given TO 33A1-7-135-2 and a list of manual mode switch positions, answer a series of questions pertaining to the resultant circuit conditions of the Power Supply Controller with at least 70 percent accuracy.					
G306 Isolate malfunctions in variable power supply controls using schematics	4	7			5.78

XI 5a. Given TO 31S5-4-809-1, a PROM Programmer, and an AGE Tool Kit, perform selected portions of the PROM Programmer Operational Checkout. No more than five instructor assists will be provided.					
F248 Perform programmable read only memory (PROM) burner operational tests	23	28			4.81
U985 Perform operational tests of PROM programmers	8	20			4.69

TABLE 24

EXAMPLES OF TASKS NOT REFERENCED TO G3ABR45136B POI

TASKS	PERCENT MEMBERS PERFORMING				TASK DIFF
	B				
	1ST JOB	1ST ENL	1ST ENL	TASK	
F226	31	36		6.93	
F236					
F238	27	52		6.54	
U885	35	36		6.40	
F234	35	35		6.31	
U906	35	44		6.19	
U905	35	34		6.14	
F205	31	33		5.44	
F203	46	42		5.41	
F272	35	34		5.34	
U912	50	55		5.27	
F217	31	38		5.24	
F254	77	66		5.16	
U913	69	74		5.13	
U911	38	38		5.12	
U925	35	31		5.07	
U889	38	34		5.06	
U922	38	45		5.03	
U892	27	34		5.02	
F201	42	45		4.99	
F281	65	55		4.92	
U980	77	80		4.92	
F264	31	32		4.83	
U924	65	75		4.76	
U954	27	31		4.75	
	23	31		4.73	

Summary

Overall, both POIs have a number of elements not supported by the survey data. These elements should be reviewed by technical subject matter experts. The majority of tasks not matched having high percentages of first-job and first-enlistment personnel performing are difficult to teach at technical school due to equipment and other limitations. It is important that technical instructors and subject-matter experts take a careful look at all unreferenced tasks to determine if it is appropriate or possible to cover these tasks in either of the basic courses.

ELECTRONIC PRINCIPLES

The Electronic Principles Inventory (EPI) (AFPT 90-EPI-825) contains 712 electronic principles, skills, and equipment questions covering 39 electronic principle subject areas. Between September 1987 and April 1988, the EPI was administered to fully-qualified 5-skill-level 451X6 personnel who responded "Yes" or "No" to the 712 EPI items, indicating the electronic principles, skills, and equipment they use in their present job.

Responses of the 168 AFSC 451X6A and 146 AFSC 451X6B personnel who completed the EPI in 1988 were matched to the AFSC 451X6 Electronic Principles/Applications STS. Results show that there are five unsupported objectives as follows:

- (1) III 6. C6 magnetic amplifiers
- (2) X 1. J1 microphones and speakers
- (3) X 2. J2 photosensitive devices
- (4) X 3. J3 storage type display tubes
- (5) X 4. J4 television laser, and infrared systems.

This means that less than 20 percent of the AFSC 45156 personnel taking the EPI responded with a "yes" to questions asking if they use the related principle, skill, or equipment. School personnel need to review these data to determine if these subjects should be retained in the basic course.

JOB SATISFACTION ANALYSIS

To provide functional managers within the AFSC 451X6 career ladder with a better understanding of factors which may affect the job performance of 451X6 airmen, an analysis of job satisfaction data was conducted. These data were gathered through the use of five inventory questions covering job interest, perceived utilization of talents and training, perceived sense of accomplishment, and reenlistment intentions.

Table 25 presents job satisfaction data for TAFMS groups of both the A- and B-shreds. When compared to a comparative sample of similar AFSCs surveyed in 1989, job satisfaction indicators are generally above 50 percent, but are generally lower than similar comparative sample personnel in most categories. The one exception is reenlistment intentions which are below 50 percent for the first- and second-enlistment groups and above 50 percent for the career group, but lower than the comparative sample for all groups displayed (see Table 25).

A comparison of job satisfaction indicators was also made between the current and previously converted AFS 326XX career ladders (Table 26). When comparing job satisfaction indicators of the current and previous surveys, it was noted that current personnel within the first enlistment for both A- and B-shreds generally reflect similar job satisfaction with those of the previous surveys. Job satisfaction indicators for the second-enlistment group are, in some instances, slightly higher and others slightly lower than those of the previous surveys. Job satisfaction indicators for the current career group are generally lower or similar to those of the previous surveys. It is interesting to note that reenlistment intentions are generally below 50 percent for the first- and second-enlistment groups for the current survey, but are higher than the previous surveys. The career group intentions to reenlist are above 50 percent and are similar to the percentages for the previous surveys (see Table 26). Although there are concerns about RIVET WORKFORCE, reenlistment intentions have improved since the last surveys.

Table 27 displays the job satisfaction indicators for the specialty jobs. With few exceptions, the majority of the personnel in most jobs indicate favorable feelings toward their jobs and the other areas. Data reflecting low percentages of personnel finding their jobs interesting are shown for Technical Training Instructors (27 percent) and Production Controllers (40 percent). Data for the Support Personnel Cluster and the AN/ALM-204 Test Station and LRU Maintenance Technicians indicate the majority of the incumbents do not feel their training to be well utilized. The majority of the Technical Training Instructors express dissatisfaction with their sense of accomplishment from their job. Reenlistment intentions are above 50 percent for a majority of the specialty jobs; however, several groups indicated a below 50 percent likelihood to reenlist.

Summary

Overall, job satisfaction for the 451X6 career ladder is generally above 50 percent with few exceptions. Changes in the career ladder as a result of Rivet WORKFORCE initiatives are possibly the cause for low job satisfaction, especially for 7-level personnel who are now responsible for more types of equipment than before and require additional training on systems not worked on at lower skill levels.

TABLE 25

COMPARISON OF AFSC 451X6 JOB SATISFACTION INDICATORS BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)*

	1-48 MONTHS TAFMS			49-96 MONTHS TAFMS			97+ MONTHS TAFMS		
	COMP			COMP			COMP		
EXPRESSED JOB INTEREST:	451X6A (N=90)	451X6B (N=85)	SAMPLE** (N=2,558)	451X6A (N=146)	451X6B (N=134)	SAMPLE (N=1,930)	451X6 (N=314)	SAMPLE (N=2,575)	
INTERESTING	66	72	75	64	66	75	64	77	
SO-SO	24	14	15	23	23	16	20	14	
DULL	10	14	8	12	10	8	15	18	
PERCEIVED UTILIZATION OF TALENTS:									
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	84 16	84 15	85 15	80 20	80 19	86 14	80 20	84 15	
PERCEIVED UTILIZATION OF TRAINING:									
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	86 14	79 21	88 12	80 20	73 27	83 16	72 28	82 18	
PERCEIVED SENSE OF ACCOMPLISHMENT:									
SATISFIED	78	73	76	71	64	75	58	74	
NEUTRAL	7	9	14	16	16	12	12	11	
DISSATISFIED	16	18	9	13	20	11	29	14	
REENLISTMENT INTENTIONS:									
YES, OR PROBABLY YES	39	45	61	49	49	72	71	75	
NO, OR PROBABLY NO	61	54	37	51	50	26	20	10	
PLAN TO RETIRE	0	1	2	0	0	1	9	14	

* Columns may not add to 100 percent due to nonresponse or rounding

** Includes Mission Equipment Maintenance AFSCs 362X4, 411X2A, 454X0A/B, and 451X4 surveyed in 1989

TABLE 26

COMPARISON OF JOB SATISFACTION INDICATORS FOR CURRENT AFSC 451X6
SURVEY
AND 1981 AFSC 326X3A, 326X4A AND AFSC 326X5A SURVEYS
(PERCENT MEMBERS RESPONDING)*

	1-48 MONTHS TAFMS				
	451X6A (N=90)	451X6B (N=85)	326X3A (N=171)	326X4A (N=282)	326X5A (N=71)
<u>EXPRESSED JOB INTEREST:</u>					
INTERESTING	66	72	79	77	67
SO-SO	24	14	13	12	20
DULL	10	14	8	11	13
<u>PERCEIVED UTILIZATION OF TALENTS:</u>					
FAIRLY WELL TO PERFECTLY	84	84	85	83	77
LITTLE OR NOT AT ALL	16	15	15	17	23
<u>PERCEIVED UTILIZATION OF TRAINING:</u>					
FAIRLY WELL TO PERFECTLY	86	79	87	73	86
LITTLE OR NOT AT ALL	14	21	13	26	14
<u>REENLISTMENT INTENTIONS:</u>					
YES, OR PROBABLY YES	39	45	25	28	30
NO, OR PROBABLY NO	61	54	75	70	69
PLAN TO RETIRE	0	1	0	0	0

* Columns may not add to 100 percent due to nonresponse or rounding

TABLE 26 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS FOR CURRENT AFSC 451X6
SURVEY
AND 1981 AFSC 326X3A, 326X4A AND AFSC 326X5A SURVEYS
(PERCENT MEMBERS RESPONDING)*

	49-96 MONTHS TAFMS				
	451X6A (N=146)	451X6B (N=134)	326X3A (N=27)	326X4A (N=59)	326X5A (N=30)
<u>EXPRESSED JOB INTEREST:</u>					
INTERESTING	64	66	67	69	60
SO-SO	23	23	11	19	20
DULL	12	10	22	12	20
<u>PERCEIVED UTILIZATION OF TALENTS:</u>					
FAIRLY WELL TO PERFECTLY	80	80	74	83	87
LITTLE OR NOT AT ALL	20	19	26	17	13
<u>PERCEIVED UTILIZATION OF TRAINING:</u>					
FAIRLY WELL TO PERFECTLY	80	73	82	76	77
LITTLE OR NOT AT ALL	20	27	18	24	20
<u>REENLISTMENT INTENTIONS:</u>					
YES, OR PROBABLY YES	49	49	30	56	40
NO, OR PROBABLY NO	51	50	70	44	60
PLAN TO RETIRE	0	0	0	0	0

* Columns may not add to 100 percent due to nonresponse or rounding

TABLE 26 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS FOR CURRENT AFSC 451X6
SURVEY
AND 1981 AFSC 326X3A, 326X4A AND AFSC 326X5A SURVEYS
(PERCENT MEMBERS RESPONDING)*

	97+ MONTHS TAFMS			
	451X6 (N=314)	326X3A (N=7)	326X4A (N=114)	326X5A (N=8)
<u>EXPRESSED JOB INTEREST:</u>				
INTERESTING	64	71	70	75
SO-SO	20	15	18	13
DULL	15	14	11	12
<u>PERCEIVED UTILIZATION OF TALENTS:</u>				
FAIRLY WELL TO PERFECTLY	80	86	80	88
LITTLE OR NOT AT ALL	20	14	19	12
<u>PERCEIVED UTILIZATION OF TRAINING:</u>				
FAIRLY WELL TO PERFECTLY	72	100	70	100
LITTLE OR NOT AT ALL	28	0	29	0
<u>REENLISTMENT INTENTIONS:</u>				
YES, OR PROBABLY YES	71	57	64	63
NO, OR PROBABLY NO	20	43	10	33
PLAN TO RETIRE	9	0	25	0

* Columns may not add to 100 percent due to nonresponse or rounding

TABLE 27

COMPARISON OF JOB SATISFACTION INDICATORS FOR 451X6 SPECIALTY JOB GROUPS
(PERCENT MEMBERS RESPONDING)*

EXPRESSED JOB INTEREST:	SUPPORT PERSONNEL (N=14)	TECHNICAL TRAINING INSTRUCTOR (N=26)	PRODUCTION CONTROLLER (N=5)	SUPERVISOR (N=118)
INTERESTING	71	27	40	73
SO-SO	14	46	40	19
DULL	14	27	20	8
<u>PERCEIVED UTILIZATION OF TALENTS:</u>				
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	71 29	54 46	80 20	93 7
<u>PERCEIVED UTILIZATION OF TRAINING:</u>				
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	43 57	73 27	100 0	76 24
<u>PERCEIVED SENSE OF ACCOMPLISHMENT:</u>				
SATISFIED	57	38	60	66
NEUTRAL	21	8	20	12
DISSATISFIED	21	54	20	20
<u>REENLISTMENT INTENTIONS:</u>				
YES, OR PROBABLY YES	64	54	40	74
NO, OR PROBABLY NO	36	46	60	10
PLAN TO RETIRE	0	0	0	16

* Columns may not add to 100 percent due to nonresponse or rounding

TABLE 27 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS FOR 451X6 SPECIALTY JOB GROUPS
(PERCENT MEMBERS RESPONDING)*

EXPRESSED JOB INTEREST:	ELECTRONIC COUNTER MEASURES MAINTENANCE TECHNICIAN (N=31)		MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN (N=168)		AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN (N=36)		PENETRATION AIDS MAINTENANCE TECHNICIAN (N=32)	
INTERESTING	84		66		67		56	
SO-SO	6		19		25		19	
DULL	6		14		6		25	
<u>PERCEIVED UTILIZATION OF TALENTS:</u>								
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	87		81		83		75	
	10		19		17		25	
<u>PERCEIVED UTILIZATION OF TRAINING:</u>								
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	71		87		36		72	
	29		13		64		28	
<u>PERCEIVED SENSE OF ACCOMPLISHMENT:</u>								
SATISFIED	74		67		56		56	
NEUTRAL	16		13		17		9	
DISSATISFIED	6		21		28		34	
<u>REENLISTMENT INTENTIONS:</u>								
YES, OR PROBABLY YES	45		60		50		47	
NO, OR PROBABLY NO	52		39		50		53	
PLAN TO RETIRE	3		0		0		0	

* Columns may not add to 100 percent due to nonresponse or rounding

TABLE 27 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS FOR 451X6 SPECIALTY JOB GROUPS
(PERCENT MEMBERS RESPONDING)*

EXPRESSED JOB INTEREST:	AUTOMATIC TEST STATION PRODUCTION TEAM LEADER (N=13)		AUTOMATIC TEST STATION PRODUCTION TECHNICIAN (N=221)		AVIONIC RECEIVER- TRANSMITTER- MODULATOR MAINTENANCE TECHNICIAN (N=8)		AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN (N=54)	
INTERESTING	69		66		63		57	
SO-SO	15		21		25		20	
DULL	15		13		13		22	
<u>PERCEIVED UTILIZATION OF TALENTS:</u>								
FAIRLY WELL TO PERFECTLY	77		83		100		76	
LITTLE OR NOT AT ALL	23		17		0		24	
<u>PERCEIVED UTILIZATION OF TRAINING:</u>								
FAIRLY WELL TO PERFECTLY	54		84		88		65	
LITTLE OR NOT AT ALL	46		16		12		35	
<u>PERCEIVED SENSE OF ACCOMPLISHMENT:</u>								
SATISFIED	54		71		50		50	
NEUTRAL	8		12		38		17	
DISSATISFIED	38		16		13		33	
<u>REENLISTMENT INTENTIONS:</u>								
YES, OR PROBABLY YES	54		52		13		48	
NO, OR PROBABLY NO	46		47		87		52	
PLAN TO RETIRE	0		0		0		0	

* Columns may not add to 100 percent due to nonresponse or rounding

SPECIAL ANALYSIS

One of the reasons for this occupational survey was to assess the current results of the RIVET WORKFORCE initiative as they pertain to AFSC 451X6. In combining similar career fields, personnel are expected to perform broader jobs than in the past. In the case of AFSC 451X6, three 326XX ladders (326X3A, 326X4A, and 326X5A) were combined and converted into this AFSC with two shreds at the 3- and 5-skill level and a combined 7-skill level.

Tables 28 and 29 reflect data on the skill level samples in relation to the previous DAFSC and the special experience identifiers (SEI) held and for which training is being pursued. The job of the 3-/5-skill-level 451X6A group has remained essentially the same as the 326X4A job, with the majority of personnel coming from that DAFSC (Table 28). The percentages training on B-shred equipment at the 3-skill level is not very great, but they are training on their own equipment in large numbers (Table 29).

The job of the 451X6B 3-/5-skill-level group, however, now consists of manual test stations and EW functions previously performed by 326X3A or 326X5A technicians, who were responsible for the maintenance of either manual or electronic warfare test stations. Now, as 451X6Bs, they must be proficient in the maintenance of both manual and electronic warfare test stations. Table 29 shows that personnel in the B-shred are training on all three types of equipment, which will make them better qualified.

At the 7-skill level, the job has even more added responsibilities. Previously, 7-skill-level personnel were responsible for only one type of test station; however, under the current system they are involved with all three types. Table 29 shows data that indicate 7-skill-level personnel are working to broaden their knowledge of the equipment used by the career ladder.

Generally, a majority of 451X6 personnel are working in jobs that would be associated with their previous AFSC, as reflected in Table 30. Few individuals appear to be performing broader jobs with responsibilities included in the other shred. Data shown in Table 31 indicate, with few exceptions, that personnel in all of the technical and shred-associated jobs are training on equipment to allow them to perform in either shred. This is one of the main concepts of RIVET WORKFORCE, and although there are indications it is being implemented, it appears as though it will take additional time and training for full implementation.

IMPLICATIONS

AFSC 451X6 career ladder was created by RIVET WORKFORCE in 1987 by merging the F/FB-111 portions of three avionics career ladders 326X3, 326X4, and 326X5. The 451X6A's job has remained primarily the same, while 451X6B personnel have had to learn another type of test station (manual or electronic warfare). The biggest change has occurred for 7-skill-level members who must

TABLE 28

PREVIOUS DAFSC HELD BY PRESENT DAFSC GROUPS
(PERCENT MEMBERS RESPONDING)

<u>PRESENT DAFSC GROUPS</u>	<u>PREVIOUS DAFSC</u>		
	<u>326X3A/ 32673</u>	<u>326X4A/ 32674</u>	<u>326X5A/ 32675</u>
DAFSC 45136A	0	21	2
DAFSC 45156A	2	79	2
DAFSC 45136B	9	0	14
DAFSC 45156B	57	0	36
DAFSC 45176	31	45	16

NOTE: DAFSC 326X3A/32673 = Integrated Avionics Electronic Warfare Equipment and Component Specialist/Technician (F/FB-111)
 DAFSC 326X3A/32673 = Integrated Avionics Computerized Test Station and Component Specialist/Technician (F/FB-111)
 DAFSC 326X3A/32673 = Integrated Avionics Manual Test Station and Component Specialist/Technician (F/FB-111)

TABLE 29
SPECIAL EXPERIENCE IDENTIFIERS (SEI) FOR DAFSC GROUPS

<u>DAFSC GROUPS</u>	<u>Present SEI</u>			<u>Currently Training ON</u>		
	<u>685</u>	<u>686</u>	<u>687</u>	<u>685</u>	<u>686</u>	<u>687</u>
DAFSC 45136A	33%	0%	0%	56%	7%	3%
DAFSC 45156A	75%	10%	7%	15%	31%	29%
DAFSC 45136B	0%	28%	35%	24%	26%	35%
DAFSC 45156B	8%	64%	49%	24%	24%	37%
DAFSC 45176	62%	51%	40%	22%	26%	35%

NOTE: SEI 685 = Automatic Equipment
 SEI 686 = Electronic Warfare Equipment
 SEI 687 = Manual Test Station

TABLE 30

PREVIOUS DAFSC HELD BY SPECIALTY JOB GROUPS
(PERCENT MEMBERS RESPONDING)

SPECIALTY JOB GROUPS	PREVIOUS DAFSC		
	326X3A/ 32673	326X4A/ 32674	326X5A/ 32675
I. SUPPORT PERSONNEL	21	50	21
II. TECHNICAL TRAINING INSTRUCTOR	23	65	8
III. PRODUCTION CONTROLLER	0	40	40
IV. SUPERVISOR	36	21	10
V. ELECTRONIC COUNTERMEASURES MAINTENANCE TECHNICIAN	39	0	22
VI. MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN	42	1	44
VII. AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN	61	8	22
VIII. PENETRATION AIDS MAINTENANCE TECHNICIAN	69	0	16
IX. AUTOMATIC TEST STATION PRODUCTION TEAM LEADER	0	46	0
X. AUTOMATIC TEST STATION PRODUCTION TECHNICIAN	1	72	3
XI. AVIONIC RECEIVER-TRANSMITTER- MODULATOR MAINTENANCE TECHNICIAN	0	50	0
XII. AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN	6	56	8

NOTE: DAFSC 326X3A/32673 = Integrated Avionics Electronic Warfare Equipment
and Component Specialist/Technician (F/FB-111)
DAFSC 326X3A/32673 = Integrated Avionics Computerized Test Station
and Component Specialist/Technician (F/FB-111)
DAFSC 326X3A/32673 = Integrated Avionics Manual Test Station and
Component Specialist/Technician (F/FB-111)

TABLE 31

SPECIAL EXPERIENCE IDENTIFIERS (SEI) FOR
SPECIALTY JOB GROUPS

SPECIALTY JOB GROUPS	Present SEI			Currently Training ON		
	685	686	687	685	686	687
I. SUPPORT PERSONNEL						
II. TECHNICAL TRAINING INSTRUCTOR	64%	50%	21%	7%	43%	57%
III. PRODUCTION CONTROLLER	65%	19%	12%	19%	38%	38%
IV. SUPERVISOR	40%	20%	40%	0%	0%	0%
V. ELECTRONIC COUNTERMEASURES MAINTENANCE TECHNICIAN	61%	55%	39%	26%	24%	34%
VI. MANUAL AND ELECTRONIC WARFARE MAINTENANCE TECHNICIAN	3%	58%	39%	10%	29%	23%
VII. AN/ALM-204 TEST STATION AND LRU MAINTENANCE TECHNICIAN	10%	52%	54%	21%	33%	33%
VIII. PENETRATION AIDS MAINTENANCE TECHNICIAN	22%	75%	39%	22%	14%	31%
IX. AUTOMATIC TEST STATION PRODUCTION TEAM LEADER	19%	72%	38%	19%	22%	41%
X. AUTOMATIC TEST STATION PRODUCTION TECHNICIAN	38%	15%	15%	31%	23%	15%
XI. AVIONIC RECEIVER-TRANSMITTER-MODULATOR MAINTENANCE TECHNICIAN	71%	10%	8%	20%	26%	25%
XII. AVIONIC INTERMEDIATE SHOP/REPLACEMENT OPERATIONS MAINTENANCE TECHNICIAN	50%	0%	0%	25%	25%	25%
	61%	11%	11%	30%	31%	26%

NOTE: SEI 685 = Automatic Equipment
 SEI 686 = Electronic Warfare Equipment
 SEI 687 = Manual Test Station

now understand the maintenance of all three types of F/FB-111 avionics test stations and components. Career ladder progression is typical, remaining technical up to the 7-level where supervisory duties predominate. The AFR 39-1 Specialty Descriptions provide a fairly accurate picture of most of the duties of 451X6 career ladder personnel. Job satisfaction indicators are generally lower than the comparative sample group, however, reenlistment intentions have improved since the previous surveys.

Analysis of the STS and the 45136A and 45136B POIs revealed that they were supported by survey data with exceptions. The exceptions include some unsupported criterion objectives and some nonreferenced tasks. A careful review of these conditions is recommended. The RIVET WORKFORCE changes have been in effect in this career ladder since 1987; however, there are two shreds (A and B) with very little overlap in functions, and two distinct jobs are being performed within the B-shred--electronic warfare and test stations and components type jobs, suggesting that RIVET WORKFORCE has not yet had the desired impact.

APPENDIX A
SELECTED REPRESENTATIVE TASKS PERFORMED
BY CAREER LADDER JOB GROUPS

TABLE I

GROUP NUMBER AND TITLE: STG13, SUPPORT PERSONNEL
 GROUP SIZE: 14 PERCENT MEMBERS OF SAMPLE: 2%
 AVERAGE GRADE: E-6 AVERAGE MONTHS TAFMS: 143
 AVERAGE MONTHS TICF: 102 AVERAGE TASKS PERFORMED: 16

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

Task Statements	Percent Members Performing
E159 Initiate or review Technical Order (TO) system forms, such as AFTO Forms 22, 27, 32, 110, 110A, 110B, and 131	64
C67 Evaluate personnel for compliance with performance standards or TOs	50
E178 Maintain TO publication files	42
B35 Direct maintenance of Technical Order (TO) files	42
C77 Inspect in-shop maintenance actions	42
E170 Maintain microfiche stock files	42
C69 Evaluate safety or security programs	42
C79 Investigate accidents or incidents	42
E165 Maintain commercial part identification number (CPIN) publication files	35
C72 Evaluate TO improvement reports	35
C70 Evaluate suggestions	35
E174 Maintain publication files, other than TO or CPIN files	28
E135 Complete AF Forms 2419 (Routing and Review of Quality Control Reports)	28
C71 Evaluate supply practices or procedures	28
C78 Inspect personnel for compliance with military standards	28
C83 Write APRs	28
E192 Review AF Forms 244 and 245	28
B47 Interpret policies, directives, or procedures for subordinates	21
E184 Perform periodic or routine inspections of tools	21
E173 Maintain property custody authorization/custody receipt listing (CA/CRL)	21
E183 Participate in Time Compliance Technical Order (TCTO) meetings	21
A22 Plan safety or security programs	21
F214 Clean shop facilities	21
B42 Implement self-inspection programs	21
E179 Maintain transaction rosters, such as D04, D18, D19, D23, M30 and T20	21

TABLE II

GROUP NUMBER AND TITLE: STG73, TECHNICAL TRAINING INSTRUCTOR
 GROUP SIZE: 26 PERCENT MEMBERS OF SAMPLE: 3%
 AVERAGE GRADE: E-5 AVERAGE MONTHS TAFMS: 108
 AVERAGE MONTHS TICF: 98 AVERAGE TASKS PERFORMED: 18

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

Task Statements	Percent Members Performing
D87 Administer tests	100
D111 Score tests	92
D93 Conduct resident course classroom training	88
D113 Write test questions	88
D100 Develop resident course training materials	76
D99 Develop performance tests	61
D95 Counsel trainees on training progress	53
F214 Clean shop facilities	50
D105 Evaluate progress of trainees	42
D88 Annotate training records	42
D98 Develop new equipment training programs	42
D107 Maintain training records	38
D101 Direct or implement training programs	30
B31 Counsel personnel on personal or military-related matters	30
B35 Direct maintenance of Technical Order (TO) files	23
H385 Perform confidence tests of AIS/R computer test stations, other than (6803) computer test stations	23
E159 Initiate or review Technical Order (TO) system forms, such as AFTO Forms 22, 27, 32, 110, 110A, 110B, and 131	23
D106 Evaluate training methods and techniques	19
D103 Evaluate effectiveness of training programs	19
F244 Perform maintenance tape tests of test stations	19
H386 Perform confidence tests of AIS/R EW test stations	19
H387 Perform confidence tests of AIS/R video test stations	19
D96 Determine training requirements	19
H391 Perform operational assurance/fault isolation (OA/FI) tests of AIS/R computer test stations	19
H392 Perform OA/FI tests of AIS/R EW test stations	19
E178 Maintain TO publication files	15
E123 Annotate SF Forms 700 (Security Container Information)	15
D102 Establish study reference files	15
F224 Inventory test stations, cabinets, rollaways, simulators, or mockups	15

TABLE III

GROUP NUMBER AND TITLE: STG140, PRODUCTION CONTROLLER

GROUP SIZE: 5

PERCENT MEMBERS OF SAMPLE: 1%

AVERAGE GRADE: E-4

AVERAGE MONTHS TAFMS: 66

AVERAGE MONTHS TICF: 59

AVERAGE TASKS PERFORMED: 10

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

<u>Task Statements</u>	<u>Percent Members Performing</u>
E163 Maintain AF Forms 2005 suspense files	100
E188 Process due-in for maintenance (DIFM) items	100
E179 Maintain transaction rosters, such as D04, D18, D19, D23, M30 and T20	80
F241 Pack or unpack LRUs or equipment	80
E128 Attach or annotate equipment status labels or tags, such DD Forms 1574 (Serviceable Tag - Materiel)	60
E197 Verify mission capability (MICAP) conditions	60
E142 Complete DD Forms 1348-1 (DOD Single Line Item Release/Receipt Document)	40
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	40
E161 Input maintenance data into computer automated maintenance system (CAMS)	20
E148 Initiate AF Forms 2520 (Repair Cycle Control Log)	20
E121 Annotate or complete AF Forms 2413 (Supply Control Log)	20
A20 Plan or schedule work assignments	20
E169 Maintain maintenance data collection (MDC) master identification (ID) listings	20
E176 Maintain test station status indicators, such as boards, graphs, or charts	20
E180 Package special tools or equipment for shipment	20
C77 Inspect in-shop maintenance actions	20
B34 Direct maintenance of administrative files	20
E168 Maintain historical technical instruction compliance records	20
A8 Determine work priorities	20
A21 Plan or schedule work priorities	20
E181 Participate in intermediate repair enhancement program (IREP) meetings	20
E186 Prepare initial issue or bypass letters for repair cycle turn-ins	20
E164 Maintain bench stock listings	20
F267 Remove or replace shop replaceable units (SRU)	20

TABLE IV

GROUP NUMBER AND TITLE: STG28, SUPERVISOR

GROUP SIZE: 118

AVERAGE GRADE: E-6

AVERAGE MONTHS TICF: 123

PERCENT MEMBERS OF SAMPLE: 15%

AVERAGE MONTHS TAFMS: 159

AVERAGE TASKS PERFORMED: 80

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

Task Statements	Percent Members Performing
C83 Write APRs	89
B31 Counsel personnel on personal or military-related matters	87
D88 Annotate training records	82
D107 Maintain training records	82
A8 Determine work priorities	79
C78 Inspect personnel for compliance with military standards	75
A20 Plan or schedule work assignments	71
B47 Interpret policies, directives, or procedures for subordinates	68
A21 Plan or schedule work priorities	68
A16 Establish performance standards for subordinates	67
A1 Assign maintenance and repair work	66
C85 Write recommendations for awards and decorations	66
D95 Counsel trainees on training progress	65
E192 Review AF Forms 244 and 245	63
C77 Inspect in-shop maintenance actions	62
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	61
D92 Conduct OJT	61
D89 Assign on-the-job training (OJT) trainers	61
D91 Certify or decertify personnel on task qualification	61
D105 Evaluate progress of trainees	59
A5 Coordinate maintenance work with appropriate personnel or agencies	59
B30 Conduct supervisory orientations of newly assigned personnel	59
A24 Schedule leaves	57
E120 Annotate AFTO Forms 95 (Significant Historical Data)	57
A17 Establish work methods or controls	56
D104 Evaluate personnel for training needs	56

TABLE V

GROUP NUMBER AND TITLE: STG42, ELECTRONIC COUNTERMEASURES
MAINTENANCE TECHNICIAN

GROUP SIZE: 31

PERCENT MEMBERS OF SAMPLE: 3%

AVERAGE GRADE: E-4

AVERAGE MONTHS TAFMS: 47

AVERAGE MONTHS TICF: 43

AVERAGE TASKS PERFORMED: 54

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

Task Statements	Percent Members Performing
F214 Clean shop facilities	90
F261 Remove or replace high voltage power supplies	80
Y1318 Perform hy-pot tests of ECM travelling wave tubes	77
F219 Inspect and clean test station blowers and filters	77
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	74
F217 Fabricate or rebuild cables	74
Y1339 Remove or replace AN/ALQ-131 ECM pod components	70
F201 Align high voltage power supplies	70
F262 Remove or replace low voltage power supplies	70
Y1327 Perform operational tests of AN/ALQ-131 ECM pods	67
Y1298 Align AN/ALQ-131 ECM pods	67
Y1326 Perform operational tests of AN/ALQ-131 ECM pod power supplies	67
Y1325 Perform operational tests of AN/ALQ-131 ECM pod cooling systems	67
E162 Inventory tools, such as consolidated tool kits (CTK) and tool chits	67
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	67
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	67
Y1313 Isolate malfunctions in AN/ALQ-131 ECM pods	64
Y1324 Perform operational tests of AN/ALQ-131 control boxes	64
F263 Remove or replace LRU minor hardware	64
E134 Complete AF Forms 2005 (Issue/Turn in Request)	64
Y1315 Isolate malfunctions in ECM pod test stations	64
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	61
F264 Remove or replace LRU pins or connectors	61
F221 Inspect equipment for current calibration dates	61
E120 Annotate AFTO Forms 95 (Significant Historical Data)	58
F202 Align low voltage power supplies	58

TABLE VI

GROUP NUMBER AND TITLE: STG47, MANUAL AND ELECTRONIC WARFARE
MAINTENANCE TECHNICIAN

GROUP SIZE: 168

PERCENT MEMBERS OF SAMPLE: 21%

AVERAGE GRADE: E-4

AVERAGE MONTHS TAFMS: 76

AVERAGE MONTHS TICF: 63

AVERAGE TASKS PERFORMED: 140

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

<u>Task Statements</u>	<u>Percent Members Performing</u>
F214 Clean shop facilities	94
F263 Remove or replace LRU minor hardware	91
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	91
F281 Solder components, such as relays, resistors, or plugs	91
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	90
F264 Remove or replace LRU pins or connectors	90
F219 Inspect and clean test station blowers and filters	88
F254 Remove or replace coaxial cable wiring or pins	87
F280 Solder components, such as integrated circuits or semiconductors	85
F221 Inspect equipment for current calibration dates	80
F217 Fabricate or rebuild cables	80
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	79
E126 Annotate, initiate, or complete AFTO Forms 349 (Maintenance Data Collection Record)	78
F267 Remove or replace shop replaceable units (SRU)	77
F243 Perform functional checks or test and inspection (T and I) of LRUs issued from supply	76
E134 Complete AF Forms 2005 (Issue/Turn in Request)	76
F246 Perform operational checks of simulators or mockups	75
E120 Annotate AFTO Forms 95 (Significant Historical Data)	73
F269 Remove or replace solderless circuit card components	72
F262 Remove or replace low voltage power supplies	72
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	72
F244 Perform maintenance tape tests of test stations	72
F210 Clean contacts	72
F241 Pack or unpack LRUs or equipment	71
F272 Remove or replace test station cable assembly pins or connectors	71

TABLE VII

GROUP NUMBER AND TITLE: STG85, AN/ALM-204 TEST STATION AND
LRU MAINTENANCE TECHNICIAN

GROUP SIZE: 36

PERCENT MEMBERS OF SAMPLE: 4%

AVERAGE GRADE: E-4

AVERAGE MONTHS TAFMS: 75

AVERAGE MONTHS TICF: 59

AVERAGE TASKS PERFORMED: 80

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

Task Statements	Percent Members Performing
F219 Inspect and clean test station blowers and filters	94
F281 Solder components, such as relays, resistors, or plugs	94
F214 Clean shop facilities	94
F262 Remove or replace low voltage power supplies	91
F263 Remove or replace LRU minor hardware	88
F261 Remove or replace high voltage power supplies	88
F201 Align high voltage power supplies	86
F264 Remove or replace LRU pins or connectors	86
F202 Align low voltage power supplies	86
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	86
Z1344 Align AN/ALM-204 systron donner generators	83
Z1366 Remove or replace AN/ALM-204 TRUs or SRUs	83
Z1356 Perform fluid deaerations of transmitters	83
Z1351 Calibrate high power microwave assemblies (HPMA)	83
Z1348 Align AN/ALM-204 test station TRUs	83
F269 Remove or replace solderless circuit card components	83
Z1346 Align AN/ALM-204 test station power supplies	83
Z1358 Perform hy-pot tests of traveling wave tubes (TWT) and A2 assemblies in AN/ALQ-99 transmitters	83
Z1350 Bootup computers	83
Z1354 Perform fault isolation tests of AN/ALM-204 test station self-test failures	83
Z1352 Perform confidence and comprehensive periodic self-tests of AN/ALM-204 test stations	83
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	80
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	80
F210 Clean contacts	80
Z1353 Perform fault isolation tests of AN/ALM-204 interface devices (ID) and cables	77
F267 Remove or replace shop replaceable units (SRU)	77
F254 Remove or replace coaxial cable wiring or pins	77
Z1347 Align AN/ALM-204 test station spectrum analyzers	77

TABLE VIII

GROUP NUMBER AND TITLE: STG161, PENETRATION AIDS MAINTENANCE TECHNICIAN
 GROUP SIZE: 32 PERCENT MEMBERS OF SAMPLE: 4%
 AVERAGE GRADE: E-4 AVERAGE MONTHS TAFMS: 78
 AVERAGE MONTHS TICF: 62 AVERAGE TASKS PERFORMED: 124

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

<u>Task Statements</u>	<u>Percent Members Performing</u>
X1251 Isolate malfunctions in PEN AIDS test station switching units	100
X1254 Perform operational tests of AN/ALQ-94 LBRs	100
X1218 Isolate malfunctions in AN/ALQ-94 LBRs	100
X1253 Perform operational tests of AN/ALQ-94 LBPA's	100
X1217 Isolate malfunctions in AN/ALQ-94 LBPA's	100
X1276 Remove or replace AN/ALQ-94 LBR components	96
X1275 Remove or replace AN/ALQ-94 LBPA components	96
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	96
F219 Inspect and clean test station blowers and filters	96
X1246 Isolate malfunctions in PEN AIDS test station buffer/adapters	93
X1197 Align AN/ALQ-94 low band receivers (LBR)	93
X1252 Isolate malfunctions in PEN AIDS test station video evaluation units	93
F214 Clean shop facilities	93
X1215 Align PEN AIDS test station RF generators	93
X1249 Isolate malfunctions in PEN AIDS test station RF generators	93
X1196 Align AN/ALQ-94 low band power amplifiers (LBPA)	93
X1248 Isolate malfunctions in PEN AIDS test station RF evaluation units	93
X1214 Align PEN AIDS test station RF evaluation units	93
F202 Align low voltage power supplies	93
G298 Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	90
X1216 Align PEN AIDS test station video evaluation units	90
G296 Isolate malfunctions in RF generators using maintenance tapes or schematics	90
X1293 Remove or replace PEN AIDS test station buffer/adaptor components	90
X1272 Perform operational tests of PEN AIDS test station buffer/adapters	90
F280 Solder components, such as integrated circuits or semiconductors	90
F281 Solder components, such as relays, resistors, or plugs	90
F201 Align high voltage power supplies	90

TABLE IX

GROUP NUMBER AND TITLE: STG140, AUTOMATIC TEST STATION PRODUCTION
TEAM LEADER

GROUP SIZE: 13

PERCENT MEMBERS OF SAMPLE: 2%

AVERAGE GRADE: E-5

AVERAGE MONTHS TAFMS: 91

AVERAGE MONTHS TICF: 42

AVERAGE TASKS PERFORMED: 59

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

<u>Task Statements</u>	<u>Percent Members Performing</u>
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	100
E126 Annotate, initiate, or complete AFTO Forms 349	100
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	100
F281 Solder components, such as relays, resistors, or plugs	92
E134 Complete AF Forms 2005 (Issue/Turn in Request)	92
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	92
F263 Remove or replace LRU minor hardware	84
F272 Remove or replace test station cable assembly pins or connectors	84
E120 Annotate AFTO Forms 95 (Significant Historical Data)	84
F219 Inspect and clean test station blowers and filters	84
E194 Review AFTO Forms 349	76
F221 Inspect equipment for current calibration dates	76
F264 Remove or replace LRU pins or connectors	76
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	69
F267 Remove or replace shop replaceable units (SRU)	69
E122 Annotate or complete AFTO Forms 244 and 245 (Industrial/Support Equipment Record)	69
A8 Determine work priorities	69
F244 Perform maintenance tape tests of test stations	69
F214 Clean shop facilities	61
E162 Inventory tools, such as consolidated tool kits (CTK) and tool chits	61
F224 Inventory test stations, cabinets, rollaways, simulators, or mockups	61
E192 Review AF Forms 244 and 245	61
F275 Remove or replace tester replaceable units (TRU)	61
B52 Supervise Avionics Automatic Test Station and Component	53
A1 Assign maintenance and repair work	53
F241 Pack or unpack LRUs or equipment	53
K473 Perform confidence tests of attitude and rate test	53
D107 Maintain training records	53

TABLE X

GROUP NUMBER AND TITLE: STG93, AUTOMATIC TEST STATION PRODUCTION
TECHNICIAN

GROUP SIZE: 221	PERCENT MEMBERS OF SAMPLE: 27%
AVERAGE GRADE: E-4	AVERAGE MONTHS TAFMS: 72
AVERAGE MONTHS TICF: 52	AVERAGE TASKS PERFORMED: 122

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

<u>Task Statements</u>	<u>Percent Members Performing</u>
F281 Solder components, such as relays, resistors, or plugs	95
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	95
F214 Clean shop facilities	95
F263 Remove or replace LRU minor hardware	95
F219 Inspect and clean test station blowers and filters	95
G298 Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	94
G297 Isolate malfunctions in stimulus controllers using maintenance tapes, manual programming, or schematics	93
G302 Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics	93
G301 Isolate malfunctions in test point controllers using manual programming, maint tapes, or schematics	92
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	90
F267 Remove or replace shop replaceable units (SRU)	90
F264 Remove or replace LRU pins or connectors	89
E126 Annotate, initiate, or complete AFTO Forms 349 (Maintenance Data Collection Record)	87
F244 Perform maintenance tape tests of test stations	85
F272 Remove or replace test station cable assembly pins or connectors	85
F235 Isolate malfunctions in test station adapters	85
G292 Isolate malfunctions in counter timers using maintenance tapes or schematics	85
G318 Remove or replace test point relays	84
G284 Align micrologic power supplies	84
G294 Isolate malfunctions in micrologic power supplies using maintenance tapes or schematics	82
F236 Isolate malfunctions in test stations through interconnects of an installed LRU	81
F280 Solder components, such as integrated circuits or semiconductors	81
F217 Fabricate or rebuild cables	81
G293 Isolate malfunctions in logic power supplies using maintenance tapes or schematics	81

TABLE XI

GROUP NUMBER AND TITLE: STG132, AVIONIC RECEIVER-TRANSMITTER-
MODULATOR MAINTENANCE TECHNICIAN

GROUP SIZE: 8

PERCENT MEMBERS OF SAMPLE: 1%

AVERAGE GRADE: E-4

AVERAGE MONTHS TAFMS: 71

AVERAGE MONTHS TICF: 43

AVERAGE TASKS PERFORMED: 61

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

Task Statements	Percent Members Performing
F254 Remove or replace coaxial cable wiring or pins	100
S638 Align modulator receiver-transmitters (MRT)	100
S694 Isolate malfunctions in MRTs	100
S708 Isolate malfunctions in TFR transmitter synchronizers	100
S770 Perform operational tests of TFR transmitter-synchronizers	100
S644 Align terrain following radar (TFR) antenna-receivers	100
S767 Perform operational tests of TFR antenna receivers	100
E120 Annotate AFTO Forms 95 (Significant Historical Data)	87
F214 Clean shop facilities	87
F219 Inspect and clean test station blowers and filters	87
F252 Pressurize LRUs	87
S757 Perform operational tests of MRTs	87
S705 Isolate malfunctions in TFR antenna receivers	87
S826 Remove or replace MRT SRUs	87
S848 Remove or replace TFR transmitter synchronizer SRUs	87
S646 Align TFR transmitter-synchronizers	87
F263 Remove or replace LRU minor hardware	87
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	75
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	75
F217 Fabricate or rebuild cables	75
F224 Inventory test stations, cabinets, rollaways, simulators, or mockups	75
S847 Remove or replace TFR transmitter synchronizer components	75
E134 Complete AF Forms 2005 (Issue/Turn in Request)	62
F243 Perform functional checks or test and inspection (T and I) of LRUs issued from supply	62
F264 Remove or replace LRU pins or connectors	62
E126 Annotate, initiate, or complete AFTO Forms 349 (Maintenance Data Collection Record)	62
S825 Remove or replace MRT components	62
S843 Remove or replace TFR antenna receiver components	62

TABLE XII

GROUP NUMBER AND TITLE: STG89, AVIONIC INTERMEDIATE SHOP/REPLACEMENT
OPERATIONS MAINTAINENCE TECHNICIAN

GROUP SIZE: 54

PERCENT MEMBERS OF SAMPLE: 7%

AVERAGE GRADE: E-5

AVERAGE MONTHS TAFMS: 83

AVERAGE MONTHS TICF: 53

AVERAGE TASKS PERFORMED: 147

TASKS ARE LISTED IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

Task Statements	Percent Members Performing
H379 Isolate malfunctions within SIAs	98
F214 Clean shop facilities	96
F219 Inspect and clean test station blowers and filters	96
F263 Remove or replace LRU minor hardware	94
F264 Remove or replace LRU pins or connectors	94
F274 Remove or replace test station minor hardware, such as light bulbs or fuses	94
F220 Inspect and clean test stations, simulators, mockups, or line replaceable units (LRU)	90
F272 Remove or replace test station cable assembly pins or connectors	90
H370 Isolate malfunctions within interface test adapters	90
F210 Clean contacts	90
F281 Solder components, such as relays, resistors, or plugs	88
F254 Remove or replace coaxial cable wiring or pins	87
H344 Isolate malfunctions to DC programmable power supplies	87
E134 Complete AF Forms 2005 (Issue/Turn in Request)	85
H341 Isolate malfunctions to AC auxiliary power supplies	85
H373 Isolate malfunctions within multifunction units	83
F243 Perform functional checks or test and inspection (T and I) of LRUs issued from supply	83
F267 Remove or replace shop replaceable units (SRU)	83
F275 Remove or replace tester replaceable units (TRU)	83
H343 Isolate malfunctions to DC auxiliary power supplies	81
H345 Isolate malfunctions to digital multimeters	79
E128 Attach or annotate equipment status labels or tags, such as DD Forms 1574 (Serviceable Tag - Materiel)	77
F235 Isolate malfunctions in test station adapters	77
H361 Isolate malfunctions to waveform analyzers	77
F262 Remove or replace low voltage power supplies	77
E156 Initiate or complete AFTO Forms 350 (Reparable Item Processing Tag)	75
F271 Remove or replace test station adapter components	75
F270 Remove or replace SRU components	75
S663 Isolate malfunctions in autopilot damper panels (APDP)	75
H346 Isolate malfunctions to digital word generator power supplies	75

APPENDIX B

UNSUPPORTED AFSC 451X6 STS ELEMENTS

The following is a listing of the paragraph numbers for the STS elements not supported by the survey data. The paragraph numbers correspond to those found in the STS section of the training extract (PRTMOD 9).

3d(1)	3d(4)	4f	5e	9b	10e
11j	11l	11n	14a(3)	14a(4)	14a(5)
14a(7)	14a(7)(a)	14a(7)(b)	14a(7)(c)	14a(8)	14a(9)
14a(10)	14a(11)	14a(12)	14a(14)	14a(15)	14a(17)
14a(18)	14a(18)(a)	14a(18)(b)	14a(18)(c)	14a(19)	14a(20)
14a(21)	14b(1)	20b(4)	20d(5)	20e(5)	20f(5)
20g(1)	20g(3)	20g(4)	21c(3)	21d(3)	21f(3)
21f(5)	21g(3)	21g(5)	21h(3)	21h(5)	21i(3)
21i(5)	22a(2)	22b(2)	22b(5)	22c(2)	23a(2)
23b(2)	23b(5)	23c(2)	24a(2)	24a(5)	24b(2)
25b(2)	25c(2)	25d(2)	25d(5)	25e(5)	25f(2)
25g(2)	26f(2)	26j(2)	26l(2)	27a(2)	27a(5)
28c(5)	29a(5)	29b(2)	29c(2)	30a(2)	30a(5)
30b(2)	30b(5)	30c(2)	30c(5)	30d(5)	30e(5)
30f(2)	30g(2)	31a(5)	31b(2)	31b(5)	31c(2)
31d(5)	31e(2)	31e(5)	31f(2)	31f(5)	31g(2)
32a(2)	32a(5)	32b(5)	32c(5)	32d(5)	32e(5)
32f(2)	32f(5)	32g(5)	32h(2)	32i(2)	33a(2)
33a(5)	33b(2)	33b(5)	33c(2)	33c(5)	33d(2)
33d(5)	33f(2)	33f(5)	33g(2)	33h(2)	33i(2)
34a(2)	34a(3)	34a(5)	34b(1)	34b(3)	36a(1)
36g(1)	36i(1)	36j(1)	36p(1)	36s(1)	36v(1)
36w(4)	36x(4)	36y(1)	36z(1)	36z(4)	36ab(1)
36ac(1)	36ad(1)	36ad(4)	36ae(1)	36af(1)	36ah(1)
36ai(1)	41b(1)	41b(8)	41f(1)	41f(3)	42f(1)
44f(1)	45f(1)	46f(1)	47f(1)	47f(2)	49e(3)
49e(4)	51a(2)	51a(3)	51a(4)	51a(5)	51b(2)
51b(3)	51b(4)	51b(5)	51c(2)	51c(3)	51d(2)
51d(3)	51d(4)	52c(6)	52c(7)	52d(1)	53c(1)
53c(2)	53c(3)	53c(4)	53c(5)	54a(2)	54b(2)
54c(2)	54c(3)	55c(3)	55c(4)	55c(5)	55c(7)
55c(8)	55c(9)	55d(1)	56c(4)	56c(5)	56c(7)
56c(8)	56c(9)	56c(11)	56d(1)	57a(2)	57a(3)
57a(5)	57b(2)	57b(3)	59d(1)	59d(2)	59f(1)
59f(2)	60d(1)	60d(2)	60d(3)	60f(1)	60f(2)
61b(1)	61b(2)	61b(3)	61b(4)	61e(2)	61e(3)
61e(4)	64a(2)	64a(3)	64a(5)	64b(2)	64b(3)
64b(5)	64c(2)	64c(3)	64c(5)	64d(2)	64d(3)
64d(5)	64e(2)	64e(3)	64e(5)	64f(2)	64f(3)
64g(1)	64h(1)	64h(2)	64h(4)	64i(1)	64i(2)
64i(4)	64j(1)	64j(2)	65c(2)	65c(3)	65c(5)
65d(2)	65d(3)	65d(5)	67c(1)	67c(2)	67c(3)
67c(4)	67c(5)	67d(1)	67d(2)	67d(3)	67d(4)
67d(5)	67d(6)	68b(8)	68b(9)	68d(3)	68d(9)
68d(10)	69g(2)(b)	69g(2)(e)	69g(2)(f)	69g(2)(g)	69g(3)(b)
69g(3)(e)	69g(3)(f)	70f(2)(d)	70f(2)(f)	70f(2)(g)	70f(2)(h)
71e(2)	71f(2)(a)	71f(2)(b)	71f(2)(c)		

APPENDIX C

UNSUPPORTED POI G3ABR45136A OBJECTIVES

A	A	
1ST	1ST	TSK
JOB	ENL	DIFF

POI OBJECTIVES AND MATCHED TASKS

I 6d. Using TO 00-5-1, a blank AFTO Form 22, and a simulated TO discrepancy, fill in the indicated blocks on the AFTO Form 22.
Two instructor assists will be allowed.

E159 Initiate or review Technical Order (TO) system forms, such as AFTO Forms 22, 27, 32, 110, 110A, 110B, and 131

13	19	4.84
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I 7d. Given a list of statements, identify those statements which describe basic AGE calibration requirements with 75 percent accuracy.

U900 Calibrate Category III test equipment
U899 Calibrate Category II test equipment

0	0	5.57
0	0	5.47

II 6a. Given a list of property responsibility categories and a list of definitions, match each responsibility category with its definition with 80 percent accuracy.

E154 Initiate or complete AF Forms 1297 (Temporary Issue Receipt)

8	12	1.97
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II 7a. Given TO 00-35D-54, a list of deficiencies, and a list of deficiency categories, match each deficiency to its appropriate category.

E158 Initiate or complete deficiency, service, or status reports

8	10	4.64
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UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

A	A	TSK
1ST	1ST	DIFF
JOB	ENL	

POI OBJECTIVES AND MATCHED TASKS

III 4a. Given extracts from IO 33D7-47-12-2, and a list of operating procedures, select those procedures which correctly describe performing minor maintenance on sub assemblies of CENPAC with at least 80 percent accuracy. STS: 38d(1), 38d(2), 38d(6)

J451	Isolate malfunctions in CENPACs using diagnostic tapes and schematics	3	6	6.68
J440	Align input/output (I/O) power supplies	0	3	5.42
J439	Align computer power supplies	0	4	5.42
J464	Remove or replace I/O computer power supply components	3	7	4.87
J460	Remove or replace CENPAC SRUs	0	6	4.29
J461	Remove or replace CENPAC SRUs, other than MTU or punch tape reader SRUs	3	7	4.17
J463	Remove or replace computer power supplies	3	7	3.56

III 4b. Given CENPAC and applicable IO's, perform selected minor maintenance procedures on the Punched Tape Reader IAW TO 33D7-12-21-1. No safety violations and no more than three instructor assists will be allowed.

F233	Isolate malfunctions in punch tape readers	0	4	6.05
F204	Align punch tape readers	3	6	5.47
F212	Clean punch tape reader heads	3	6	3.08

III 4c. Given CENPAC and applicable IO's, perform minor maintenance using the Magnetic Tape Unit IAW TO 33D7-61-43-1. No safety violations and no more than three instructor assists will be allowed. STS: 38d(4) 3c, 3d(1), 3d(2), 4c(1), 4c(2)

F232	Isolate malfunctions in magnetic tape readers	0	9	6.35
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UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

A 1ST JOB	A 1ST ENL	TSK DIFF
POI OBJECTIVES AND MATCHED TASKS		
----- X 3b. Given extracts from TO 33D7-38-38-227-1, answer questions pertaining to basic facts and general operation principles of the Switching Interface Assembly (SIA) Power Supply with at least 80 percent accuracy.		
H378 Isolate malfunctions within SIA power supplies	7	6.27
----- X 3c. Given extracts from TO 33D7-50-779-1, answer questions pertaining to the proper procedures for the assembly/disassembly of the SIA Virginia Patch Panel with at least 80 percent accuracy.		
H335 Assemble and disassemble Virginia patch panels	3	6.41
----- X 3d. Given extracts from TOs 33D7-38-227-1 and 33D7-50-739-1 answer questions pertaining to basic facts and general operating principles of an Interface Test Adapter (ITA) with at least 80 percent accuracy.		
H370 Isolate malfunctions within interface test adapters	12	6.24
----- X 3e. Given extracts from TOs 33D7-38-227-1 and 33D7-90-3-1 (2/0) answer questions pertaining to basic facts and general operating principles of the Load assembly with at least 80 percent accuracy.		
H371 Isolate malfunctions within load drawers	7	6.32

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

<u>POI OBJECTIVES AND MATCHED TASKS</u>		<u>A</u>	<u>1ST</u>	<u>A</u>	<u>1ST</u>	<u>TSK</u>
		<u>JOB</u>	<u>ENL</u>	<u>ENL</u>	<u>DIFF</u>	

X 4d.	Given extracts from TO 33D7-38-227-1, answer questions (.5/.5) pertaining to basic facts and general operating principles of the Digital Word Generator with at least 80 percent accuracy.					
H366	Isolate malfunctions within digital word generators	16	10			6:65

X 4e.	Given extracts from TO 33D7-38-227-1, answer questions pertaining to basic facts and general operating principles of the Digital Word Generator (DWG) Power Supply with at least 80 percent accuracy.					
H346	Isolate malfunctions to digital word generator power supplies	5	8			5.35

X 5a.	Given extracts from TOs 33D7-38-227-1, 33AA39-19-1, and 33A1-13-461-1, answer questions pertaining to basic facts and general operating principles of the Waveform Analyzer with at least 80 percent accuracy.					
H383	Isolate malfunctions within waveform analyzers	3	4			6.29
H361	Isolate malfunctions to waveform analyzers	13	10			5.47

X 5b.	Given extracts from TOs 33D7-38-227-1 and 33A1-10-254-1, answer questions pertaining to basic facts and general operating principles of the Universal Counter with at least 80 percent accuracy.					
H381	Isolate malfunctions within universal counters	3	3			6.25

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	A 1ST JOB	A 1ST ENL	TSK DIFF
----- X 5c. Given extracts from IOs 33D7-38-227-1 and 33A1-12-1163-1, answer questions pertaining to basic facts and general operating principles of the Digital Multimeter with at least 80 percent accuracy. H345 Isolate malfunctions to digital multimeters	13	16	5:14
----- X 6b. Given extracts from IOs 33D7-38-227-1, 33D7-38-209-1, 33D7-38-228-1, 33D7-38-208-1, 33D7-56-34-11, and 35C1-2-918-1, answer questions pertaining to basic facts and general operating principles of the AC Auxiliary Power Supply with at least 80 percent accuracy. STS: 15c(2) 15c(4) Meas: PC H341 Isolate malfunctions to AC auxiliary power supplies	13	14	5:27
----- X 6c. Given extracts from IOs 33D7-38-227-1, 35C1-2-1-281 and the P6/P12 programmer manual, answer questions pertaining to basic facts and general operating principles of the DC Programmable Power Supply with at least 80 percent accuracy. H344 Isolate malfunctions to DC programmable power supplies H343 Isolate malfunctions to DC auxiliary power supplies	13 16	17 16	5:18 5:17
----- X 7b. Given extracts from IO 33D7-38-227-1, answer questions pertaining to basic facts and general operating principles of the UUT Blower with at least 80 percent accuracy. H360 Isolate malfunctions to unit under test (UUT) blowers	13	12	4:51

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	A 1ST JOB	A ENL	TSK DIFF
----- X 7b. Given extracts from IO 33D7-38-227-1, answer questions pertaining to basic facts and general operating principles of the UUT Blower with at least 80 percent accuracy. -----			
H360 Isolate malfunctions to unit under test (UUT) blowers	13	12	4:51
----- X 7c. Given extracts from IO 33DA102-20-1, answer questions pertaining to basic facts and general operating principles of the Computer Test Station's UUT Blower with at least 80 percent accuracy. -----			
H360 Isolate malfunctions to unit under test (UUT) blowers	13	12	4:51
----- X 8a. Given extracts from IO 33AA43-13-1, answer questions pertaining to basic facts and general operating principles of the Avionics Test Set Calibrator Set (ATSCS) with at least 80 percent accuracy. -----			
H364 Isolate malfunctions within ATSCSs	3	3	6.44
----- XI 2a. Given extracts from IOs 33D7-38-227-1 and 33D7-8-121-1, C/ATLAS dictionary and questions pertaining to the data flow and general operating principles of the Programmable Synchro/Resolver Simulator, select the appropriate response to each question with at least 80 percent accuracy. -----			
H353 Isolate malfunctions to programmable synchro/resolver simulators	5	4	5.85

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

<u>POI OBJECTIVES AND MATCHED TASKS</u>	<u>A</u>	<u>1ST</u>	<u>JOB</u>	<u>A</u>	<u>1ST</u>	<u>ENL</u>	<u>TSK</u>	<u>DIFF</u>
<p>-----</p> <p>XI 3a. Given extracts from IOs 33D7-38-227-1 and 33D7-9-36-1, (3/0) an C/ATLAS dictionary and questions pertaining to data flow and general operating principles at the Gyro Accelerometer Test Set, select the appropriate response to each question with at least 80 percent accuracy.</p> <p>H369 Isolate malfunctions within gyro accelerometer test assemblies</p> <p>-----</p> <p>XI 3b. Given extracts from IOs 33D7-9-36-1 and a list of (3/0) statements, determine the steps required for calibration of the GYRO Accelerometer Test Set with at least 80 percent accuracy.</p> <p>H324 Align and calibrate gyro accelerometer test assemblies</p> <p>-----</p> <p>XI 4a. Given a Computer Test Station and its applicable IOs, perform an operational check of the Gyro Accelerometer Test Set (GATS) IAW IOs 33D7-9-36-1 and 33D7-38-227-1. A maximum of two instructor assists and no safety errors are allowed.</p> <p>H324 Align and calibrate gyro accelerometer test assemblies</p> <p>-----</p> <p>XI 4b. Given a Computer Test Station and its applicable IOs, perform an OA/FI of the Inertial Reference Unit Adapter Group and perform ITA Wraparound tests IAW IOs 33D7-38-227-1, 33D7-6-235-1 and 33D7-50-798-1. A maximum of two instructor assists and no safety errors are allowed.</p> <p>H391 Perform operational assurance/fault isolation (OA/FI) tests of AIS/R computer test stations</p>	0	3	3	6.50				
	0	0	0	5.79				
	0	0	0	5.79				
	16	11	4.94					

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS				
A	1ST JOB	A	1ST ENL	TSK DIFF

XI 4c. Given a Computer Test Station, an ATSCS and applicable IOs, perform calibration of selected TRUs of the Computer Test Station using ATSCS software. A maximum of two instructor assists and no safety errors are allowed.				
F209	16	Calibrate test station meters or gauges	18	3.98

XII 1a. Given extracts from TO 33D7-38-228-1, and questions pertaining to data flow and general operating principles of the Video Test Station, select the appropriate response to each question with at least 80 percent accuracy.				
H347	5	Isolate malfunctions to display terminals	6	4.96

XII 3a. Given extracts from TOs 33D7-38-228-1, 33D2-28-15-1 and 33D2-28-18-1, a C/ATLAS Dictionary and questions pertaining to data flow and general operating principles of the Pressure Simulator System, select the appropriate response to each question with at least 80 percent accuracy.				
H375	0	Isolate malfunctions within pressure simulator systems	1	6.28

XII 4a. Given extracts from TOs 33D7-38-228-1, 33D7-77-50-1, a C/ATLAS Dictionary and questions pertaining to data flow and general operating principles of the Display Test Assembly, select the appropriate response to each question with at least 80 percent accuracy.				
H367	0	Isolate malfunctions within display test assemblies	2	6.40

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	A 1ST JOB	A 1ST ENL	TSK DIFF
<p>XII 5a. Given a Video Test Station and its associated TOs, (2/0) perform an operational check of the Pressure Simulator System (PSS) IAW TO 33D7-38-228-1, and TO 33D2-28-18-1. A maximum of two instructor assists and no safety errors are allowed.</p> <p>F246 Perform operational checks of simulators or mockups F208 Calibrate pressurization test sets</p>	3 0	16 0	4.88 4.78
<p>XII 5b. Given a Video Test Station and its associated TOs, perform an operational check of the Display Test Assembly IAW TO 33D7-38-228-1, and TO 33D7-77-50-1. A maximum of two instructor assists and no safety errors are allowed. STS: 20d(2) Meas: PC</p> <p>F277 Align test station adaptors mechanically</p>	11	20	4.50
<p>XII 5d. Given a Video Test Station, the ATSCS, all required adapters and the applicable calibration Technical Data, perform calibration/verification on selected Video Test Station peculiar TRUs. A maximum of two instructor assists per TRU and no safety errors are allowed.</p> <p>F209 Calibrate test station meters or gauges</p>	16	18	3.98
<p>XIII 2a. Given extracts from TO 33D7-38-208-1 and questions pertaining to data flow and general operating principles of the RF Test Station, select the appropriate response to each question with at least 80 percent accuracy.</p> <p>H394 Perform OA/FI tests of RF test stations</p>	13	11	4.94

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

<u>POI OBJECTIVES AND MATCHED TASKS</u>		<u>A</u>	<u>1ST</u>	<u>A</u>	<u>1ST</u>	<u>TSK</u>
		<u>JOB</u>	<u>ENL</u>		<u>ENL</u>	<u>DIFF</u>

XIII 3b.	Given extracts from IOs 33DA3-98-1 and 33D7-38-208-1, an RF/EW ATLAS Dictionary and questions pertaining to data flow and general operating principles of the RF Interface Assembly, select the appropriate response to each question with at least 80 percent accuracy.					
H375	Isolate malfunctions within RF interface adapters	11	9			6.60

XIII 5a.	Given extracts from IOs 33DA52-23-1 and (4/0) 33D7-38-208-1 an RF/EW Dictionary and questions pertaining to data flow and general operating principles of the Microwave Test Assembly, select the appropriate response to each question with at least 80 percent accuracy.					
H372	Isolate malfunctions within microwave test assemblies	3	8			6.46

XIII 6c.	Given an RF Test Station, an ATSCS and applicable technical orders, perform Calibration/Verification on the RF Test Station. No safety errors and only two instructor assists will be allowed.					
F203	Align pulse generators	13	18			5.34
F209	Calibrate test station meters or gauges	16	18			3.98

XIV 2a.	Given extracts from IOs IO 33D7-10-129-1 and (2/0) 33D7-38-209-1, an RF/EW ATLAS Dictionary and questions pertaining to data flow and general operating principles of the Spectrum Analyzer, select the appropriate response to each question with at least 80 percent accuracy.					
H356	Isolate malfunctions to spectrum analyzers	11	13			5.71

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	A 1ST JOB	A 1ST ENL	TSK DIFF
<p>XIV 2b. Given extracts from IOs 33A1-7-282-1 and (2/1) 33D7-38-209-1, an RF/EW ATLAS Dictionary and questions pertaining to data flow and general operating principles of the CW Power Meter, select the appropriate response to each question with at least 80 percent accuracy.</p>			
<p>H342 Isolate malfunctions to continuous wave (CW) power meters</p>	5	8	5.16
<p>XIV 2c. Given extracts from IOs 33A1-2-267-1 and 33D7-38-209-1, an RF/EW ATLAS dictionary and questions pertaining to data flow and general principles of the Traveling Wave Tube Amplifier (TWT), select the appropriate response to each question with at least 80 percent accuracy.</p>			
<p>H359 Isolate malfunctions to traveling wave tube amplifiers</p>	3	7	5.76
<p>XIV 3a. Given an EW Test Station and applicable technical orders, perform CONFI on selected TRUs IAW Test Program Set. No safety errors and only one instructor assist will be allowed per TRU.</p>			
<p>H386 Perform confidence tests of AIS/R EW test stations</p>	16	10	3.84
<p>XIV 3b. Given an EW Test Station and applicable technical orders, perform OA/FI IAW Test Program Set OA/FI on selected TRUs. No safety errors and only one instructor assist will be allowed per TRU.</p>			
<p>H392 Perform OA/FI tests of AIS/R EW test stations</p>	16	10	5.14

UNSUPPORTED POI G3ABR45136A OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS		A	1ST	TSK
		JOB	ENL	DIFF

XIV 3c. Given an RF Test Station an ATSCS and applicable technical orders, perform Calibration/Verification on the RF Test Station. No safety errors and only one instructor assist will be allowed per TRU. STS: 16b(3), 53a, 19b Meas: PC				
H339	Calibrate radio frequency (RF) test stations using ATSCSs	0	4	7.10
F209	Calibrate test station meters or gauges	16	18	3.98
H340	Clean magnetic tape heads	16	12	3.01

APPENDIX D

UNSUPPORTED POI 3ABR45136B OBJECTIVES

B	1ST JOB	B	1ST ENL	TSK DIF
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POI OBJECTIVES AND MATCHED TASKS

I 5e. Given a gas cylinder, a regulator, and a storage area, demonstrate the proper procedures for connecting and storing compressed gases. One instructor assist will be allowed.

F255 Remove or replace compressed gas bottles

8		9		3.32
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I 5g. Given a list of incomplete statements, complete the statements describing reporting RF overexposure with 75 percent accuracy.

E149 Initiate AF Forms 457 (USAF Hazard Report)
E150 Initiate AF Forms 979 (DANGER TAG)

12	5	3.32
0	0	2.87

I 7c. Given a list of Test Equipment Categories and a list of descriptive statements, match each statement to its appropriate category with 75 percent accuracy.

U900 Calibrate Category III test equipment
U899 Calibrate Category II test equipment
F273 Remove or replace test station Category III test measurement diagnostic equipment (TMDE)

0	2	5.57
0	6	5.47
19	25	3.12

I 7d. Given a list of statements, identify those statements which describe basic AGE calibration requirements with 75 percent accuracy.

U900 Calibrate Category III test equipment
U899 Calibrate Category II test equipment

0	2	5.57
0	6	5.47

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B	1ST JOB	B	1ST ENL	TSK DIF

II 6a. Given a list of property responsibility categories and a list of definitions, match each responsibility category with its definition with 80 percent accuracy.					
E173 Maintain property custody authorization/custody receipt listings (CA/CRL)					
E179 Maintain transaction rosters, such as D04, D18, D19, D23, M30 and T20	0		0		4.98
E196 Validate bench stock listings	0		4		4.58
E154 Initiate or complete AF Forms 1297 (Temporary Issue Receipt)	4		1		3.87
	15		22		1.97

II 6d. Given five part numbers, an optical viewer, and a supply listing, cross reference each part number to its respective national stock number with no more than two instructor assists.					
E170 Maintain microfiche stock files	0		0		3.21

II 7a. Given TO 00-350-54, a list of deficiencies, and a list of deficiency categories, match each deficiency to its appropriate category. STS: 10d Meas: PC					
E158 Initiate or complete deficiency, service, or status reports	12		9		4.64

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B			
	JOB	1ST ENL	TSK DIF	

III 4c. Given CENPAC and IOs 33D7-61-43-1 and 33D7-42-1-108-1, perform a minor maintenance of the Magnetic Tape Unit to include loading Bootstrap and Executive Programs. No safety errors and no more than one instructor assist will be allowed.				
J441 Align magnetic tape units (MTU) capstans	0	0	7.01	
J442 Align MTU circuit cards	0	0	6.23	
J443 Align MTU power supplies	0	0	5.81	
J455 Perform MTU headgate adjustments	0	0	5.54	
J456 Perform MTU vacuum adjustments	0	0	5.33	
J467 Remove or replace MTU capstan belts	0	0	5.14	
J468 Remove or replace MTU SRU components	0	0	4.68	
J460 Remove or replace CENPAC SRUs	0	0	4.29	
J469 Remove or replace MTU SRUs	0	0	4.19	
J454 Load CENPAC bootstraps	4	5	3.72	
J447 Demagnetize MTU heads	0	0	3.56	
J445 Clean MTU transports	4	2	3.29	

IV 1c. Given a Shop System Manual and a list of DATAC programs, decode each program and list the data that would appear on DATAC displays with at least 80 percent accuracy.				
G291 Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics	0	11	6.97	

IV 1d. Given a Shop System Manual and a list of DATAC display conditions, encode each condition into a DATAC program with at least 70 percent accuracy.				
G291 Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics	0	11	6.97	

UNSUPPORTED POI 3ABR451368 OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B	1ST JOB	B	1ST ENL	TSK DIF
<p>IV 1e. Given TO 33A1-3-378-2 and a DATAC Digit Key data flow diagram, list the reference designator, signal name, or pin number at selected points throughout the diagram and answer questions relating to Digit Key data flow. A minimum of 70 percent must be correctly completed for each.</p>					
<p>G291 Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics</p>	0	11			6.97
<p>IV 1f. Given TO 33A1-3-378-2 and a DATAC Test Request Cycle data flow diagram, list the reference designator, signal name, or pin number at selected points throughout the diagram and answer questions relating to Test Request data flow. A minimum of 70 percent must be correctly completed for each task.</p>					
<p>G291 Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics</p>	0	11			6.97
<p>IV 1g. Given TO 33A1-3-378-2 and a DATAC-Programmed Information data flow diagram, list the reference designator, signal name, or pin number at selected points throughout the diagram and answer questions relating to Programmed Information data flow. A minimum of 70 percent must be correctly completed for each task.</p>					
<p>G291 Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics</p>	0	11			6.97

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

<u>POI OBJECTIVES AND MATCHED TASKS</u>		<u>B</u>	<u>1ST</u>	<u>B</u>	<u>1ST</u>	<u>TSK</u>
		<u>JOB</u>	<u>ENL</u>		<u>ENL</u>	<u>DIF</u>
IV 1h. Given TO 33A1-3-378-2 and a DATAC-Measured Value Available data flow diagram, list the reference designator, signal name, or pin number at selected points throughout the diagram and answer questions relating to Measured Value Available data flow. A minimum of 70 percent must be correctly completed for each task.						
G291	Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics	0	11			6.97
IV 1i. Given TO 33A1-3-378-2, answer a series of questions concerning the Parallel Mode of operation of DATAC with at least 80 percent accuracy.						
G291	Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics	0	11			6.97
IV 1j. Given TO 33A1-3-378-2 and a Shop System Manual, answer a series of questions concerning the Serial Mode of operation of DATAC with at least 70 percent accuracy.						
G291	Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics	0	11			6.97
IV 1k. Given TO 33A1-3-378-2, answer a series of questions concerning the DATAC Logic Verify function with at least 80 percent accuracy.						
G291	Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics	0	11			6.97

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

<u>POI OBJECTIVES AND MATCHED TASKS</u>		<u>B</u>	<u>1ST</u>	<u>B</u>	<u>1ST</u>	<u>TSK</u>
		<u>JOB</u>	<u>ENL</u>		<u>ENL</u>	<u>DIF</u>
IV 2a. Given a CENPAC-controlled semi-automatic test station and its applicable maintenance tape TO, perform diagnostic testing of DATAC. No safety errors and no more than two instructor assists will be allowed.						
G291 Isolate malfunctions in binary data register-routers (DATAC) using maintenance tape or schematics		0	11			6.97
V 1a. Given TO 33A1-10-112-2 answer a series of questions concerning each section of the Counter/Timer TO with at least 70 percent accuracy.						
G292 Isolate malfunctions in counter timers using maintenance tapes or schematics		4	8			6.82
V 1b. Given a Shop System Manual, encode/decode Counter/Timer operations and programs with at least 70 percent accuracy.						
G292 Isolate malfunctions in counter timers using maintenance tapes or schematics		4	8			6.82
V 1c. Given to 33A1-10-112-2, a Shop System Manual and a Period program, decode the program to determine the resultant circuit conditions of the Counter/Timer with at least 70 percent accuracy.						
G292 Isolate malfunctions in counter timers using maintenance tapes or schematics		4	8			6.82

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B	1ST	ENL	TSK	DIF
V 1d. Given TO 33A1-10-112-2, a Shop System Manual and a Pulse-Width program, decode the program to determine the resultant circuit conditions of the Counter/Timer with at least 70 percent accuracy.					
G292 Isolate malfunctions in counter timers using maintenance tapes or schematics	4	8		6.82	
V 1e. Given TO 33A1-10-112-2, a Shop System Manual and a Frequency program, decode the program to determine the resultant circuit conditions of the Counter/Timer with at least 70 percent accuracy.					
G292 Isolate malfunctions in counter timers using maintenance tapes or schematics	4	8		6.82	
V 1f. Given TO 33A1-10-112-2, a Shop System Manual, a list of DVM programs and a list of Counter/Timer logic devices, match each program to its applicable device with at least 70 percent accuracy.					
G292 Isolate malfunctions in counter timers using maintenance tapes or schematics	4	8		6.82	
V 1g. Given TO 33A1-10-112-2, a Shop System Manual and an Elapsed Time-Limit program, decode the program to determine the resultant circuit conditions of the Counter/Timer with at least 70 percent accuracy.					
G292 Isolate malfunctions in counter timers using maintenance tapes or schematics	4	8		6.82	

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS		B	1ST JOB	B	1ST ENL	TSK DIF
V 2a. Given a CENPAC-controlled semi-automatic test station and its applicable maintenance tape T0, perform diagnostic testing of the Counter/Timer. No safety errors and a maximum of two instructor assists will be allowed.						
G292	Isolate malfunctions in counter timers using maintenance tapes or schematics	4		8		6.82
VI 1a. Given T0s 33D3-9-100-2 and 33D3-9-101-2, answer a series of questions concerning the function and theory of operation of the Stimulus Selector Controller and the Stimulus Relay Assemblies with at least 80 percent accuracy.						
G297	Isolate malfunctions in stimulus controllers using maintenance tapes, manual programming, or schematics					
G298	Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	12		14		6.55
		12		16		6.34
VI 1b. Given a Shop System Manual, encode/decode selected Stimulus Switching relays/programs with at least 80 percent accuracy.						
G298	Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	12		16		6.34

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B	1ST JOB	B	1ST ENL	TSK DIF
VI 1c. Given TO 3303-9-101-2, a Shop System Manual and a Stimulus Relay program, decode the program and answer questions pertaining to the resultant circuit conditions of the Stimulus Selector Controller with at least 80 percent accuracy.					
G297 Isolate malfunctions in stimulus controllers using maintenance tapes, manual programming, or schematics	12	14	6.55		
VI 1d. Given TO 3303-9-100-2 and a list of program input pins, answer questions pertaining to the resultant circuit conditions of the Stimulus Relay Assemblies with at least 80 percent accuracy.					
G298 Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	12	16	6.34		
VI 1e. Given a Shop System Manual and a list of Stimulus Relay programs, specify the full reference designator, signal name and the input and output pins of the relays with at least 80 percent accuracy.					
G298 Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	12	16	6.34		
VI 2a. Given TOs 3303-9-102-2 and 3303-9-103-2, answer a series of questions concerning the function and theory of operation of the Test Point Controller and Test Point Relay Assemblies with at least 80 percent accuracy.					
G301 Isolate malfunctions in test point controllers using manual programming, maint tapes, or schematics	8	11	6.46		
G302 Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics	8	14	6.31		

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

<u>POI OBJECTIVES AND MATCHED TASKS</u>		<u>B</u>	<u>1ST</u>	<u>TSK</u>
		<u>JOB</u>	<u>ENL</u>	<u>DIF</u>

VI 2b.	Given a Shop System Manual, encode/decode selected Test Point Switching relays/programs with at least 80 percent accuracy.			
G302	Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics	8	14	6.31

VI 2c.	Given TO 33D3-9-102-2, a Shop System Manual and a Test Point Relay program, decode the program and answer questions pertaining to the resultant circuit conditions of the Test Point Controller with at least 80 percent accuracy.			
G301	Isolate malfunctions in test point controllers using manual programming, maint tapes, or schematics	8	11	6.46

VI 2d.	Given TO 33D3-9-103-2 and a list of program input pins, determine the resultant circuit conditions of the Test Point Relay Assembly with at least 80 percent accuracy.			
G302	Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics	8	14	6.31

VI 2e.	Given TO 33D3-9-103-2 and a list of program input pins, determine the resultant circuit conditions of the Test Point Distribution Relay Assembly with at least 80 percent accuracy.			
G302	Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics	8	14	6.31

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

B	B	TSK
1ST	1ST	DIF
JOB	ENL	

POI OBJECTIVES AND MATCHED TASKS

VI 2f. Given a Shop System Manual and a list of Test Point Relay programs, specify the full reference designator, signal name, the input and output pins of the relays and the measurement device used with at least 70 percent accuracy.

G302 Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics

8	14	6.31
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VI 3a. Given a CENPAC-controlled semi-automatic test station and its applicable maintenance tape T0, perform automatic diagnostic testing of the Stimulus Selector Controller/Relays. No safety errors and no more than one instructor assist will be allowed.

G297 Isolate malfunctions in stimulus controllers using maintenance tapes, manual programming, or schematics

12	14	6.55
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G298 Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics

12	16	6.34
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VI 3b. Given a CENPAC-controlled semi-automatic test station and its applicable maintenance tape T0, perform automatic diagnostic testing of the Test Point Controller/Relays. No safety errors and no more than one instructor assist will be allowed.

G301 Isolate malfunctions in test point controllers using manual programming, maint tapes, or schematics

8	11	6.46
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G302 Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics

8	14	6.31
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UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS					
	B	1ST	B	1ST	TSK
	JOB	ENL	JOB	ENL	DIF

VI 4a. Given a CENPAC-controlled semi-automatic test station and its applicable service with operation TO, a Shop System Manual, TOs 33D3-9-100-2 and 33D3-9-101-2, a consolidated tool kit, a relay program and a list of test points, probe each test point to determine the circuit conditions of the Stimulus Selector Controller and its associated relays. No safety errors and no more than three instructor assists will be allowed.					
G297 Isolate malfunctions in stimulus controllers using maintenance tapes, manual programming, or schematics					
G298 Isolate malfunctions in stimulus relays using maintenance tapes, manual programming, or schematics	12	14	12	14	6.55
	12	16	12	16	6.34

VI 4b. Given a CENPAC-controlled semi-automatic test station and its applicable service with operation TO, a Shop System Manual, TOs 33D3-9-102-2 and 33D3-9-103-2, a consolidated tool kit, a relay program and a list of test points, probe each test point to determine the circuit conditions of the Test Point Controller and its associated relays. No safety errors and no more than three instructor assists will be allowed.					
G301 Isolate malfunctions in test point controllers using manual programming, maint tapes, or schematics					
G302 Isolate malfunctions in test point relays using manual programming, maint tapes, or schematics	8	11	8	14	6.46
	8	14	8	14	6.31

VII 1e. Given TO 33A1-7-135-2 and a list of manual mode switch positions, answer a series of questions pertaining to the resultant circuit conditions of the Power Supply Controller with at least 70 percent accuracy.					
G306 Isolate malfunctions in variable power supply controls using schematics	4	7			5.78

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B	1ST	JOB	B	1ST	ENL	TSK	DIF
VII lg. Given a Shop System Manual and a list of Transformer/Converter programs and operations, decode/encode each program or operation with at least 80 percent accuracy.								
G303 Isolate malfunctions in transformer/converters using manual programming, maintenance tapes, or schematics	0	2	6.40					
VII lh. Given TO 33D3-9-99-2, a Shop System Manual and a list of programs, decode each program to determine the resultant circuit conditions of the Transformer/Converter with at least 80 percent accuracy.								
G303 Isolate malfunctions in transformer/converters using manual programming, maintenance tapes, or schematics	0	2	6.40					
VII li. Given TO 33D3-9-99-2, and a list of manual mode switch positions, specify the resultant circuit conditions of the Transformer/Converter with at least 80 percent accuracy.								
G303 Isolate malfunctions in transformer/converters using manual programming, maintenance tapes, or schematics	0	2	6.40					
VII lj. Given a Shop System Manual and a list of angles, encode the program necessary to simulate each angle with at least 80 percent accuracy.								
G303 Isolate malfunctions in transformer/converters using manual programming, maintenance tapes, or schematics	0	2	6.40					

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

<u>POI OBJECTIVES AND MATCHED TASKS</u>		<u>B</u>		<u>1ST</u>	<u>B</u>	<u>1ST</u>	<u>TSK</u>
		<u>JOB</u>	<u>ENL</u>			<u>ENL</u>	<u>DIF</u>
VII 1k. Given TO 33D3-9-112-2, a Shop System Manual and a list of programs, decode each program to determine the resultant circuit conditions of the Synchro Standard with at least 80 percent accuracy.							
G300	Isolate malfunctions in synchro standards using maintenance tapes, manual programming, or schematics	0	1				6.40
VII 1l. Given TO 33D3-9-112-2 and a list of manual mode switch positions, determine the resultant circuit conditions of the Synchro Standard with at least 80 percent accuracy.							
G300	Isolate malfunctions in synchro standards using maintenance tapes, manual programming, or schematics	0	1				6.40
VII 1m. Given a Shop System Manual and a list of angles, encode the programs necessary to measure each angle with at least 80 percent accuracy.							
G300	Isolate malfunctions in synchro standards using maintenance tapes, manual programming, or schematics	0	1				6.40
VII 1n. Given TO 33D3-9-116-2, a Shop System Manual and a list of programs, decode each program to determine the resultant circuit conditions of the Synchro Bridge with at least 80 percent accuracy.							
G299	Isolate malfunctions in synchro bridges using maintenance tapes, manual programming, or schematics	0	1				6.44

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B			
	1ST JOB	1ST ENL	TSK DIF	
VII 1a. Given TO 33D3-9-116-2 and a list of manual mode switch positions, specify the resultant circuit conditions of the Synchro Bridge with at least 80 percent accuracy.				
G299 Isolate malfunctions in synchro bridges using maintenance tapes, manual programming, or schematics	0	1	6.44	
VII 2a. Given a CENPAC-controlled semi-automatic test station and its applicable maintenance tape IO, perform diagnostic testing of the Logic Power Supply. No safety errors and no more than one instructor assist will be allowed.				
G293 Isolate malfunctions in logic power supplies using maintenance tapes or schematics	0	9	6.30	
VIII 6b. Given TO 33D7-44-170-2, incomplete statements, and a list of terms concerning RF Generator data flow, complete the statements to an accuracy of 70 percent.				
G296 Isolate malfunctions in RF generators using maintenance tapes or schematics	12	19	7.27	
IX 4b. Given IOs 33D7-44-170-2, 33D7-81-8-1 and incomplete statements concerning tape reader data flow, complete the statements with 80 percent accuracy.				
X1238 Isolate malfunctions in CRS test station tape readers	4	11	5.55	

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B			
	1ST JOB	ENL	TSK DIF	
IX 4d. Given TO 33D7-44-170-2, TO 33D7-44-170-18-2, a selected test number, and an incomplete switching and interface block diagram, fill in the diagram with 70 percent accuracy.				
X1237 Isolate malfunctions in CRS test station switchings	4	13	7.05	
IX 4e. Given TO 33D7-71-29-1 and incomplete statements concerning RF Bay data flow, complete the statements with 75 percent accuracy.				
X1236 Isolate malfunctions in CRS test station RF test bays	4	13	6.40	
X 2a. Given TO 33D7-44-170-18-2, TO 33D7-71-29-1, TO 33D7-81-8-1, and malfunction scenarios, list the troubleshooting procedures to isolate a malfunction of the following TRUs with 100 percent accuracy.				
X1235 Isolate malfunctions in CRS test station RF generators	4	14	7.44	
X1237 Isolate malfunctions in CRS test station switchings	4	13	7.05	
X1236 Isolate malfunctions in CRS test station RF test bays	4	13	6.40	
X1234 Isolate malfunctions in CRS test station local oscillators	0	11	5.95	
X1238 Isolate malfunctions in CRS test station tape readers	4	11	5.55	
XI 3a. Given TO 33D7-81-9-1, a Tape Reader Schematic diagram, a hypothetical situation, and a selected input, state the logic level at the indicated location.				
X1271 Perform operational tests of DPTs	12	20	5.49	

UNSUPPORTED POI 3ABR45136B OBJECTIVES (CONTINUED)

POI OBJECTIVES AND MATCHED TASKS	B			B		
	1ST JOB	1ST ENL	TSK DIF	1ST JOB	1ST ENL	TSK DIF
<p>XI 3b. Given TO 33AA39-11-1, a Dual Pulse Generator A1A1 block diagram and selected input, state the output pulse characteristics with a 75 percent accuracy.</p>						
X1271 Perform operational tests of DPTs	12	20	5.49			
<p>XI 3c. Given DPTS Ancillary Equipment schematic diagram, TO 33AA39-11-1 and selected inputs or connections, respond by stating the outputs or total resistance of the connections with 75 percent accuracy.</p>						
X1271 Perform operational tests of DPTs	12	20	5.49			
<p>XI 3d. Given TO 33AA39-11-1, and a diagram, label each signal that interconnects the Tape Reader to the Control Panel Assembly.</p>						
X1271 Perform operational tests of DPTs	12	20	5.49			
<p>XI 5a. Given TO 31S5-4-809-1, a PROM Programmer, and an AGE Tool Kit, perform selected portions of the PROM Programmer Operational Checkout. No more than five instructor assists will be provided.</p>						
F248 Perform programmable read-only memory (PROM) burner operational tests	23	28	4.81			
U985 Perform operational tests of PROM programmers	8	20	4.69			
<p>XI 5d. Given TO 33D7-81-9-1 and an AGE Tool Kit, perform selected portions of the Tape Reader Alignment. No more than four instructor assists will be provided.</p>						
F204 Align punch tape readers	23	19	5.47			